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*Planning in Pioneer Settlement\**

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Geographers have always had a good deal to say about agriculture and the use of the land but until recently they have spoken in general descriptive terms that have conveyed only elementary impressions on the subject. Like other sciences, geography has grown progressively more technical, specific, analytical. It remains to be seen whether these advances have given it any greater value in helping man to become better adjusted to his environment. Most of the papers dealing with land-use seem to be more concerned with the development of techniques than with ideas. Techniques alone are but schemes of systematic observation and notation. They are not ideas but the servants of ideas. If geography is ever to influence political and social policies it must deal with ideas that seem to be of critical importance to government and society, conveyed in terms that leaders can understand. May I suggest that every person and every subject goes through what might be called a technological phase. Youth enjoys the sound of new terms. Who has not liked to play with dot maps and land-use maps, with the symbols of cartography, with surveying instruments, with the detailed analysis of land forms? All these are extremely valuable tools; but for what? Surely for the purpose of serving ideas that are believed to affect the progress of science or the destiny of mankind. Otherwise technology remains a game and often a kindergarten game at that.

These observations are inspired by the present state of agriculture

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and my theme tonight is a special phase of that subject, namely, the margin of the cultivable earth where life conditions are not normal but subnormal and where more or less specialized modes of cultivation and community organization are the key to permanent occupation and the maintenance of an acceptable standard of living. The zone of pioneering is really a border to a much larger area in which there is an interplay of forces far greater than those that originate on the border. Therefore, to understand that zone, to know the pioneer belts of the world, we have to stand now on one side, now on the other of the advancing border, looking first at the forces that reach out through regions of denser settlement to that border and then at the possibilities beyond the existing border in new lands that are either thinly populated or have as yet no population at all.

A world-wide study of the pioneering process would seem at first sight to involve us in a hopeless tangle of diversities. The superficial view is that the streams of humanity are too diverse to be brought within the confines of "laws" however formulated or understandings however expressed. So different seem the economic systems under which pioneers operate and the environments of which they have to take account, so variable their standards of living, that each appears to be like an individual—to a large degree a law unto himself and in a sense unique. But there is a deeper significance to the movement than that. First, the differences are not so wide as we may at first suppose. The remaining frontier lands are almost all below the optimum in climate; that is, in the amount of available soil moisture, the length of the growing season, and the recurrence and duration of drought. They are alike in lying in zones of climatic uncertainty and therefore of continuing agricultural experimentation. Second, it has not been found feasible to raise crops in every region in which it is physically possible to raise them. The natural and eventual "range" of production of a crop may depend not upon ultimate possibilities of climate and soil but upon cheap or costly transport, upon the number of times that a successful crop can be grown—what might be called the index number of crop success—and upon the incidence of untried ideas and possibilities of gaining a living.

The Peace River settlements show that wheat and barley and oats can be grown in that region—not merely on the valley floor but to some extent upon the adjacent uplands. But the frequent recurrence of years of exceptionally early autumn and late spring frosts so increases the crop hazard that mixed farming tends to

take the place of the one-type farming of the region farther south from which most of the settlers come. Wood-cutting and grazing enlarge the economic scope of the settler. In time a balanced economy may be worked out and this will probably mean less rather than more wheat. Australia has shown us the working of the process on a grand scale. The inner grazing fringe was invaded by the farming belt in which a single crop was grown as the technique of its production became adapted to the topographic and climatic regime. Region by region, the roughly belted arrangement of crop and cattle zones moved forward and behind them came the mixed farming zones that became the standard type.

In that latest development—the stabilization of the whole culture through varying degrees of adaptation here and there to the natural conditions, resources, and forces of Australia—we see at least the temporary balancing of two things in what we short-memoried humans call a “final” adjustment: a production technique responsive to world economic demands and applied in a geographical environment whose possibilities have been disclosed by a long series of experiments. Australia still has its zones of experimentation in the field of production but they exist in their intenser phases chiefly upon the interior border of the country. How far is the land permanent range, how often will it produce a dependable crop of wheat, when will great droughts come, how large must a unit of ownership be to make possible or successful a given use of the land? Within the stabilized areas of older settlement, where the so-called final geographical adjustments have been made, there are also zones of experiment but they have to do more largely with social conditions and forces, the scrapping or altering of social and economic theories or concepts which are not primarily geographical.

There are discernible outlines of system in the pioneering process. The similarity of climatic extremes of given type puts the stamp of similarity upon agricultural practices, the size of holdings, and the attitude of government toward the experimenters. In marginal land the question is everywhere raised how far it is wise to go on trying to do everything out to the extreme limit of performance or natural possibility. One general need: we know much about the habits of the weather, about climate in the densely settled regions of optimum conditions, but we know painfully little about the wider swings of the climatic extremes in the climatically marginal lands. Mere fact-gathering here lags behind where it should be ahead. Climatic studies of an advanced type are required before the fundamental questions of pioneering limits can be answered.

Questions of economic and social density are almost universal. Wellington tells us that in southern Africa social density is not a paramount issue or even an issue at all. It is, of course, well known that the distances that separate neighbors are less important in pioneer (*vs.* densely settled) communities made up as they may be of persons who prefer the wider spacings of new lands.

In the lower malarial country of northern and eastern Transvaal, where considerable areas are still open to pioneer development, the public health authorities advise settlement in compact villages rather than scattered homesteads. It is sought to avoid the growth of a poor white class, to use malaria-tolerant labor, and to provide a health service more readily managed in concentrated settlements. The segregation of natives is recommended. The use of quinine and the protection afforded by screening reduce the incidence of malaria and all but removes a natural bar to settlement.<sup>1</sup>

Group settlement is the clearly expressed desire of many persons to whom the other limitations of pioneer living are acceptable. And no one can escape the laws of economics however much he may wish to live in peace apart. To *have* one must buy, and that means hauling to market something to sell. The length of the haul is significant. It is astonishing that it varies by so little as the difference between ten and twenty-five miles. Jefferson assures us in his "Peopling the Argentine Pampa" that fifteen miles is the economic distance of grain haulage today in Argentina. In Western Australia the figure is ten or twelve miles, in southern Africa fifteen miles, the land within twenty-five miles of rail being called "farm-land" in the report on the railways of Rhodesia by General Hammond. Thirty miles is about the general limit for truck haulage in the dry-farming belt of our own West, extended to sixty and seventy miles only under special conditions.<sup>2</sup>

The moment we recognize the common features of marginal settlement we see how haphazard has been the pioneering of the past and how unsystematic and incomplete our knowledge of it. The thrust of culture into the vacant lands has been almost without guidance because the facts have not been known. The venturing farmer has had to be his own scientist. Science comes along afterward, asks him questions, looks at the soil and the native vegetation,

<sup>1</sup> N. H. Swellingrebel: Report on Investigation into Malaria in the Union of South Africa 1930-31. Department of Public Health, Pretoria, 1931.

<sup>2</sup> For a fuller discussion of the relation of transport to settlement, see Isaiah Bowman: *The Pioneer Fringe*. American Geographical Society Special Publication No. 13, New York, 1931.



and tells him in Latin polysyllables why he has succeeded or failed. Someone has been eternally gambling on this earth, confident that she would return a harvest, disappointed in her, cursing her, and then returning to gamble again. That is why the pioneer is called a "luck-hunter," gambler if you will. Farming in general is gamble enough in all conscience but the pioneer does double time at the game. Of course there are great prizes to be won—that is what induces the gamble. If a man strikes it right, gets good land cheap, and if the seasons are kind, he may pay for his farm in three or four years. Said the farmers of western Kansas in the summer of 1930, "Give us two more wet years like the last two and we will have our farms paid for. After that let the dry years come, we will live somehow."

It is one of the extraordinary contrasts of our time that in a period of agricultural over-production new land should be sought on the far borders of settlement. Idle acres are now reported from almost every section of the country. New England is no longer the only region that is alarmed over a growing number of "abandoned farms." The migrant leaves his acres in a land of full cultural equipment to settle in a land where civilization is still in the making. Still more remarkable is the fact that there are special risks to be borne if the pioneer fringe of today is to be settled, for the remaining lands are not of the best in most cases. They are on the drier or the hotter or the colder borders of the better-favored lands. Offsetting these risks and deficiencies are solid advantages else the road to the border would not be sought by so many thousands. The land is cheap, the tax-rate low, the soil is new, neighbors are often on an equal footing. Finally, there are the elements of guesswork and faith or belief. The earliest pioneers bore the same relation to permanent settlement as the wildcatter sustains to the exploitation of an oil pool. Someone must make the first guess.

Pioneering is a process, a dynamic, not merely a series of dot maps and statistical tables. It involves elements from the natural sciences because frost and drought bear a critical relation to the crops of the pioneer; but there are also markets to be considered and routes to them. Most important of all, pioneering involves an attitude of mind. A study of pioneering that takes no account of the spirit of the pioneer is a study *in vacuo*. It came with a great deal of amazement to the settlement organizations of the British Empire after the World War that even the most attractive promises of aided settlement drew the interest of so small a number of settlers. Free steamship tickets, group organization and clearing

of the land, as in Western Australia, apprenticeship in farming under excellent conditions, as in South Africa; in short, any degree of assistance that was thought practicable, attracted but a small number of persons. This was commonly explained by saying that the pioneering spirit had died out in the world, that men were no longer willing to take risks, and that the remaining agricultural lands could not be occupied even by a spoonfed population.

What is overlooked in this too facile diagnosis is the fact that men come from communities quite different from those that supplied the older type of pioneer. To take a single example from the field of health: the older pioneer came from a community where the risks to health and where care in accident and sickness were not so greatly different from the conditions that confronted him on the border. The situation has become completely changed in the last fifty years. The greater skill and accessibility of physicians in the city mean safer living. To leave a telephone behind and make a home in the wilderness may prove, in an emergency, to be the difference between life and death.

In addition to the risks, there are the discomforts and inconveniences that follow if modern inventions are left behind. To be a pioneer one must also give up to a considerable extent one's control over instruments of power. If one were to map the country according to the distribution of instruments of power—using the term in the broad sense to include telegraph, telephone, and mail services, as well as tractors, motor cars, and machine-equipped farms—one would find this deficiency and the lower tax rates of newer lands, to be the chief material distinctions between pioneer living and living in regions of permanent settlement.

It is hard for the modern man to think of giving up access to or control over instruments of power to which he is accustomed. He may have just as great a desire to become a pioneer as his ancestors had, but he has to leave very much more behind him if he goes to the border. This explains, in part at least, why the effort of Great Britain to stimulate pioneering has met with so little success and why the pioneers of today in Canada, South Africa, and Siberia, are advancing in such large numbers: the appeal is made to city people in the one case and to farm people in the other. The gap in the standard of living is wider in the former case and narrower in the latter. The difficulty confronting government in an overpopulated industrial land in finding an outlet for its people is due to the fact that the overpopulation comes chiefly in industry, not in agriculture. And among an industrial population without

skill in or knowledge of farming, a home in the wilderness is about as bleak and bewildering a prospect as one could present.

There are two great forces playing upon that part of mankind that seeks the pioneer fringe of settlement: (1) the lure of cheap land in hazardous climatic zones; and (2) the low economic limit of efficiency in the turning of the pioneer's crop into necessary supplies. The limits of settlement in the marginal lands of the world are the resultant of these forces. That is as true of settlement in the zone of experiment of central and southeastern Oregon or central Montana as it is of the plantations of Northern Rhodesia or the wheat lands of West Australia or the zone of colonization that is the scene of present disturbance in central Manchuria.

These two forces that play upon the life of the border of settlement are not temporary, to pass out of the scene tomorrow. They have played their role consistently and unremittingly in the past. Each marked thrust of settlement represents but the striking of a new balance between the forces. I see the boundaries of our civilization, of every civilization, held back at the pioneer fringe just as the boundaries of Rome were held back on the north and east and south not solely by topographic and climatic obstacles, nor by barbarian opposition alone, but also by the limit of profit: to get products out, and supplies in, on lengthening radii of communication. With Rome these difficulties were chiefly military—the policing of long lines of transport traversed by man and beast. The difficulty of our modern pioneer is chiefly commercial and in that sense one sees a pioneer fringe on Grand Street, New York City, or in the town of Lyme, New Hampshire, or in the cut-over lands of western Oregon and central Michigan, no less than on the High Plains of eastern New Mexico or the valley borders of the Peace River country.

The emphasis I place upon the working of economic forces that form the background of pioneering is the result of a study in the first instance of the geography of the pioneering process. The geographical factors prove to be of limited consequence, nearly as limited let us say as the sociological or political factors when taken by themselves. They form the canvass and contribute to the composition, just as do tables of statistics, but they are not the design. The design is life itself—communities of men engaged not in the cultivation of certain silt or sandy loams or the occupation of a given upland of specified physiographic origin, but engaged in getting a living in a given place under the operation of economic forces that give meaning to the care, for example, with which the

border settler watches the seasonal rains or the incidence of frost. As geographers we watch rainfall and productivity statistics but these are meaningless unless we relate them to purchasing power, to all of that which is bundled together and tied up in the term "market price"—transportation costs, world-production, seasons and crops elsewhere on the planet, the growing parasitism and industrialization of the cities—a vast *complex of forces*. Interchange of goods is in a diseased state and what changes of mode take place in the process of trading mill products for soil products will fundamentally affect the pioneer or border settler along with all the rest of us. It does no good to study pioneering as a detached problem for no region of human consequence can be an economic vacuum.

What the border settler or pioneer no less than the man on Broadway wants is a standard of living. "We came out here because we had to live" said one farmer of western Kansas in 1930 when I asked him why he had moved from a neighborhood two hundred and fifty miles farther east. He went into the wheat-producing grasslands of the dry uplands of the High Plains of western Kansas to escape the high taxes of the old neighborhood. Three-fourths of the taxes were the result of too many miles of paved roads and too many schools sentimentally and foolishly overbuilt on the theory that "nothing is too good for our children"—true enough unless the result is so grievous a burden of taxes, both governmental and indirect, on the next generation that the land is abandoned. No complacent "is it really so bad as that?" will long keep us in our present too-comfortable frame of mind. We have loaded such burdens of bond issues and services, such Alps of taxation upon our offspring on the theory that the best is none too good for anybody and everybody, and *especially for ours*, that we have denuded the land, driven farmers off productive soils, and encouraged machine-cultivation to reach out into grasslands in periods of comparatively wet years where permanent range, not grain-growing, is indicated by rain and market price. A machine technique is applied with deadly efficiency to virgin soil held in large units purchased at low prices. Thus the marginal grain farmer beats the game in selected regions by employing more intensively the tools and stimulating the very conditions that brought about the crisis from which he fled in the older community!

Is there any difference between a drought and a drop in the market price of grain and an excessive tax burden? Each spells diminished returns, no payment of interest on the farm mortgage, a smaller net income for food and clothing, the complete paralysis

of trade in luxuries and conveniences, depopulation. You may ask "Do these calamities really stalk abroad?" Montana, with its vast extent of marginal land will answer. In this present winter of 1931-32 the Red Cross has already received applications for aid from 28 of the 55 counties of the state. Garfield County in a central location—typically marginal from the climatic standpoint—has 1200 families and of these about 1000, or four-fifths of the total, have already requested aid. Valley County, which lies astride the Great Northern Railway, has nearly 300 families that got Red Cross relief during the winter and spring of 1929-1930. This is what Webb might well have meant when he spoke of the "social chaos and economic ruin!"<sup>3</sup> that is visited upon the western fringe of settlement in that zone of experimentation within our own borders that again and again has acted as the barometer of high and low economic pressures of the wider storm centers of the cities and denser agricultural communities.

The effects of these great forces now reach into every part of the whole vibrating mass of interorganized humanity. The people of the West speak of the present "dry cycle" as they term it. For the rest, "times are bad." It is not some unknown Dragon of Calamity that blows its evil breath upon us; nor is it merely a matter of lack of rainfall and the niggardliness of an impoverished earth; it is an earth filled up with people, and an economic system that has run away with us. Science has greatly ameliorated life in this period of expansion but it has also contributed to the chaos. We are all participants in this "disguised civil war," to quote a line from a recent issue of *Nature*. Our vocabularies have outrun our understanding. "We talk big and think small." We have been brought up on words and "those largely words of the past." No one "science" holds the key to present-day living.

Nor is research in pioneer settlement a problem in land use merely. For no one knows the best combination of land use in a rapidly evolving civilization. The ruling concepts of life, region by region, have also their special part to play. The distinctive environmental setup of the pioneer belts, region by region, is a part of the analysis and so too is community living. It is a problem to be solved in a border zone of experiment where new problems are forever arising. All life everywhere is forever experimental in a broad sense. But experimentation is especially true of life at the border where the fringe of our economic system is trying to succeed

<sup>3</sup> W. P. Webb: "The Great Plains and the Industrial Revolution," in *The Trans-Mississippi West*, p. 314. Boulder, Colo., 1930.

under special economic conditions in an environment that fluctuates beyond the extreme of crop endurance to the extreme of good rainfall and frostless growing seasons. Here in the marginal lands the earth gives forth generously, of "its own free will," or it refuses a crop on any terms.

It was said by Bagehot that it is the highest genius of government "to evoke new power." We will not stop over his definition of government but rather appropriate for our immediate purpose the idea of the evocation of new power as the higher purpose of all organization, whether of government or of private enterprise. But new power is of necessity malevolent in its effects at certain times and places. No one can measure or forecast the impact or the value of the forces let loose in the world by the genius of man. Values change from age to age. There is an elemental uncontrollability about human inventions and organizations that keeps man reminded that he is not Deity.

I am led to these reflections by the ultimate purpose of the plan of research in pioneer settlement described and of the ideas embodied in the plan. The purpose is to influence the makers of government policies in the direction of a reasoned approach to land questions, not to settle people on the land. We do not see in "the science of settlement" an ultimate means of escape of mankind from the evils of crowded city living, though our interest in lands of potential settlement is now made more poignant because the earth is filling up. Our purpose is more direct: scientifically to study a life process that involves millions of people, vast acreages of good land, increased production of agricultural commodities in a world already cursed with over-production and the abandonment of once productive land of appalling extent. The process compels men to experiment with themselves and with their environment. Not alone high prices for farm products incite men to occupy new land. When the prices of farm products are lowest men are also induced to look for new and more promising sites that mean less capital required to buy, less labor with which to produce, less taxes to pay. A severe drop in crop prices is as likely to lead to new land occupation by settlers from the older communities as a severe drought is likely to drive them back or end their prosperity in the semiarid fringe.

Upon the accompanying map (Fig. 1) you may see the amazing extent of the pioneer lands. No need to entice men into them. They are going fast enough as it is. The governor of one province besought one of the new organizations set up under the plan to hurry its field studies and its recommendations so that he might



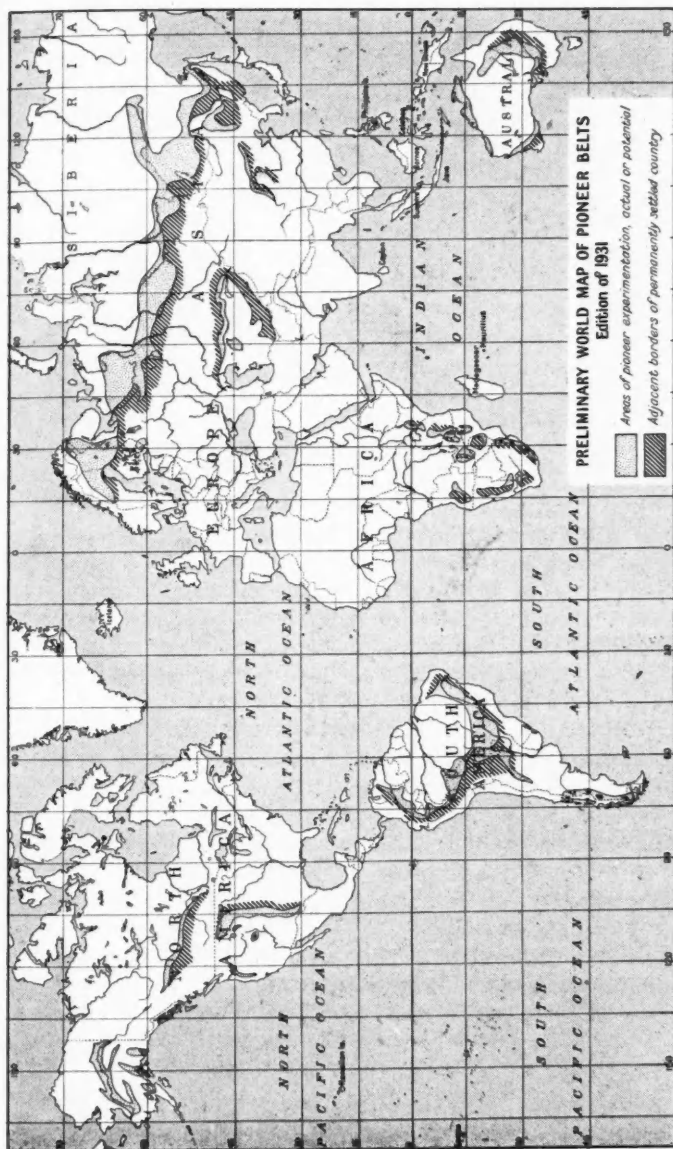


FIG. 1.—World map of pioneer belts. The outlines of the different areas are shown diagrammatically and are based upon criteria that vary in combination from region to region. The North African and Sudanese belts have been omitted and many smaller areas also. The stippled areas in Alaska and northern Siberia are much exaggerated in size on this projection in comparison with other areas in lower latitudes.

shape his policies accordingly, confronted as he was with the demands of a new population assembled in a few years in a frontier region where government is asked to supply the machinery of community life before any one is prepared to say how much of the "plant" that is asked for will prove to be permanently needed.

While the modern pioneer expects to realize opportunity by hard labor he is not looking for the rough fare and homespun of the pioneers of the heroic age of western settlement. He tries to take civilization with him. He is machine equipped, or wants to be; and like everybody else nowadays he wants everything "because there is so much to want." He represents a thrust of population on a frontier at least six or eight thousand miles long in the aggregate. Frontier living is even more experimental than in the past because the best land was generally the first to be taken. Why do so many people continue to leave the more densely settled regions to go to distant frontiers? What inducement is there in our time of agricultural over-production to leave a land of full cultural equipment and migrate to a land where civilization is still in the making? Science is not merely responsive to events which have already happened but "creative of events which are about to happen." Where are the boundaries of knowledge, the areas of ignorance? In a profoundly disturbed society what are the social results of colonizing activity?

Surely there is no need of new farms unless they can produce more cheaply than the farms that are now in use. And if the new lands are to be preferred to the older ones what use is to be made of the older ones? Are they to be abandoned, their communities left to rust out, their land to revert to perplexed state governments? Is immigration to be encouraged on the once prevalent theory that the more people that a nation has the stronger it is? Are the immigrants to be left to gather in the cities or propelled to the relatively empty lands, a practice once held to be axiomatic of truth but which the overproduction of machine-equipped agriculture has now brought under fresh consideration?

In the past ten years a number of declarations have been made to the effect that pioneering is ended, that the world is now filled up with people, that the pioneering spirit is dead, and that no one is looking for a border where land is cheap and where homesteads can be created out of wilderness. In truth, the remaining useful pioneering lands are vast. The *process* has only changed its form. Men, and women to an even greater degree, are now much more critical about living conditions than they were in the past. New forces and ideas have been introduced into life. For purposes of

understanding we might call them new dimensions and refer to our five-dimensional world. As we move about and have our being we must take account of the three classical dimensions of space and after that of *speed* and *quality*. We live at a certain pace and in our civilization at least if the pace becomes too slow we say we are not living. We do not ask merely to live, we want to live up to a certain level. I am not referring to a high standard of living; I am referring to *a* standard of living, *any* standard. Any standard means something higher than no standard and, in general, standards rise. These things are no less true of the pioneer. He is not looking for hardship; he is looking for opportunity. Some opportunities can only be realized through hardship but to ask the pioneer to leave the good roads of a motor-car community and move into a region of no roads and no motor cars is to ask him to go back relatively not to 1900 in his standards of living but to 1700.

Just as the whole of civilization has come through higher and higher stages of development, so has pioneer settlement come to be a quite different thing from what it was in earlier periods. Motor vehicles that provide greater speed for areas of permanent settlement are also required on the border. Indeed, the need for them may be much greater than elsewhere. Mere knowledge of the rest of the world plays its part in affecting the desires (which tend to become the requirements) of the pioneer. Here is a conflict between social standards and economic gain on marginal land that played a much less conspicuous part or was absent altogether in earlier epochs of settlement. As civilization grew more complex in the cities and in densely peopled areas the gap between the standards of living in areas of permanent settlement and the standards of living in frontier settlement grew wider and wider. In the present it is the intention of the pioneer that the gap shall not be so wide. But the gap cannot be closed unless government takes a hand. The pioneer asks government to help him raise his standard of living; that is, he asks for roads, railroads, telegraph lines, schools, lower freight rates, mail service, and financial support in obtaining land or marketing produce. Government cannot go ahead blindly meeting all of these demands. It cannot ask for a list for the settler's Christmas stocking. For one thing, it must make reasonably sure that the new settlement gives promise of a degree of permanence sufficient to justify the heavy capital outlays for all of these expensive "instruments of power."

The whole of society is now much more conscious of the processes in which it is involved. Our educational system helps this along.

In addition, rural free delivery puts the newspaper in every home. The radio now reaches everywhere. The voices of the world are heard by the whole of the world. The end result is that the pioneer, like everybody else, is much more emphatic than he used to be about the objectives of life. We have advanced into a technological stage of living which makes us analytical about the elements of our environments. All of this means that we must pass out of the stage of guesswork and enter the stage of scientific study of the frontier. In pursuing that study we are made aware that data now exist for world-wide comparisons where formerly they did not exist. Statistical tables of a type useful in critical study are inventions of relatively recent times. In making our comparisons from region to region we find that we cannot merely jump from one culture to another. A history of colonization is not just the recognition of a repeating pattern of life. We have to deal with different cultures, different races, variable economic systems, distinct differences between standards of living, totally different attitudes toward exotic products, widely varying facilities for large-scale financing of enterprises based upon new land, equally variable degrees of difficulty in the matter of inter-communication among colonizing groups and between seats of production and centers of exchange.

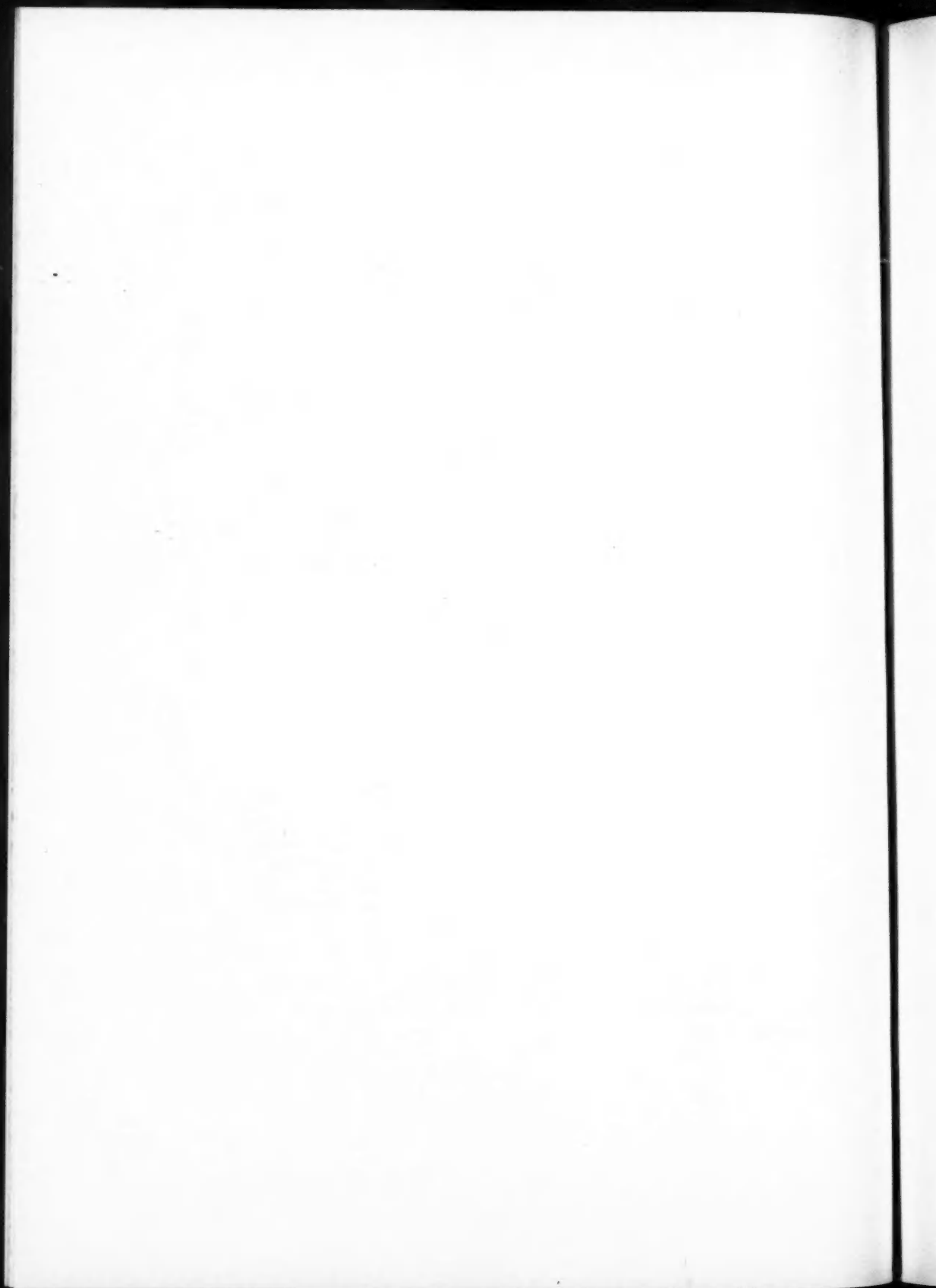
Every one of the many concepts of which I have spoken can be tested by statistical methods, by intensive studies of sample areas, by an examination of the standards and patterns of community living, by a synthesis of the opinions of men involved in the pioneering process, by the advances and retreats of border populations, and by analyses of the causes that lie back of these fluctuations. On the physical side, we find that the need is great for a much more detailed analysis of the variability of rainfall upon the dry borders of settlement. The conventionally generalized data regarding rainfall are of little assistance here for the type of cultivation is as important as the rainfall. The cost of labor, machinery, and transport may be found to offset favorable rainfall conditions and lead to the exclusion of population under physical conditions that would invite a population in other countries where these factors possess a different value. As important as detailed analyses of rainfall are the studies now in progress upon the incidence of frost on the cold borders of the arable lands where the lengthened hours of summer daylight offset to a perceptible degree the effect of increasing latitude.

Through cooperative studies it is sought to apply these technical

processes to one after the other of the pioneer belts of the world. A beginning has been made in "The Pioneer Fringe" and in a publication now in press entitled "Pioneer Settlement," a book by twenty-six authors who are specialists with first-hand knowledge of the regions with which they deal. Through that special knowledge and by technical studies of high quality, it is sought to test the underlying concepts one by one. The next stage will be to push that study further in each of the great pioneering areas of the world. It is not sought through this cooperative plan to level off the research involved in it in a way that will make either the methods or the results uniform in type. Whatever similarities there may be in the methods employed, the attempt will be made to maintain a healthy "harmony of differences."

It is believed, however, that the time has come when both technical studies on the one hand and generalizations therefrom on the other have reached a point of testing and comparison and that they can be put together systematically in a form that may deserve to be called "the science of settlement." This does not connote fixed conceptions and rigid laws. The laws of social behavior no less than the laws of the physical world are constantly undergoing revision. This is not merely because the differences in people and lands from region to region, but also because people are changing in their attitude toward life as new ideas and new instruments of power come into being.

I have not attempted throughout this address to deal in an intensive way with any single region by way of illustration. Rather my purpose has been to present the general ideas or concepts that have inspired the study, and through the maps to give you a conception of the great extent of country and the millions of people that are involved, and to correct the tendency to regard settlement as a more or less uniform process. Geographers have paid singularly little attention to that part of the settled earth where environment most conspicuously affects the lives of men. The problem is not a local one but a world problem as the map showing the belted arrangement of the pioneer lands clearly reveals. Here would seem to be an opportunity for geography to take an important part if not a leading one in focusing technical methods from other disciplines upon territories and people of wide extent and of increasing significance in a world in which the remaining arable lands are being rapidly filled.





# *The Geography of Residence in Norway*

## *Fiord Areas*

GEORGE D. HUBBARD

In some population studies the distribution of people has been discussed and mapped by the square mile. In this paper the effort has been to seek the specific kinds of places in which the Norwegian has built his house and to determine what factors have been most potent in his choice. In a land like the plains of Western Ohio and Illinois or of Russia and parts of China, houses are located in rows, along roads, or on plots laid out in more or less regular geometric patterns (sometimes made up in an office). But in this fiorded portion of Norway no such plans are used, nor are they possible. The Norwegian would tell us, of course, that all things considered, he thought the place selected was the best available. Now that he has found his "best place," we begin our observations to see what he chose and, if possible, why he selected it.

General statements and maps of human distributions in Norway show the larger densities to be around and south of Oslo, with a sparser population all across the southern end. Some maps show a fringe of moderate density, 15-30 people to the square mile, along the west side extending 150 to 200 miles either side of Trondhjem; and all maps lump the rest at under 20 or under 15 per square mile. This study concerns only the western portion of Norway stretching from Hardanger to Trondhjem fiords, a bee-line distance of 300 miles with a width of 50 to 100 miles. It is interested in the specific sites used for homes rather than the number of people per square mile.

### CASES

In this area two towns dominate commerce, industry, and education: Trondhjem in the north with some 60,000 people and Bergen in the south with a little less than 100,000 (Fig. 1). Scattered among the maze of land and water forms are a score of villages of a few hundreds each. These all are located where the people can use commercial highways, outlets and inlets, not intersections.

Besides the towns are found ten to fifteen thousand houses, many in small groups of two or three but literally hundreds of them standing quite alone. One could block out thousands of

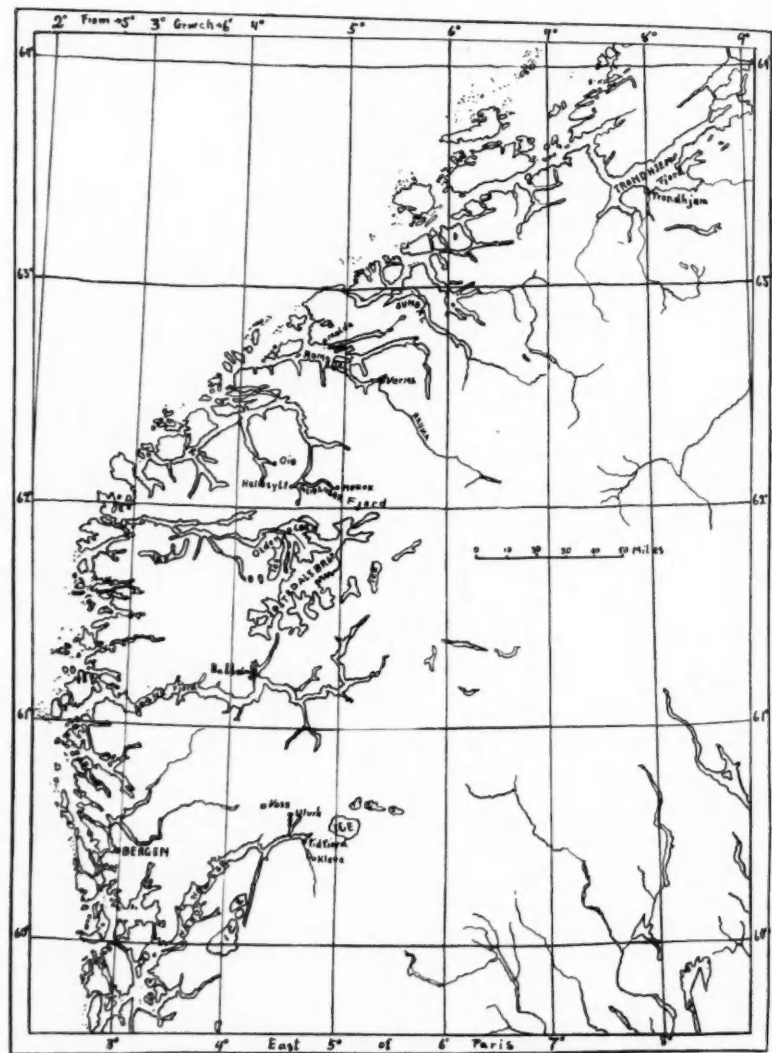


FIG. 1.—Map of a portion of Norway between Bergen and Trondhjem showing locations of places mentioned.

square miles in irregular areas without a single house, hence the houses must be in rather restricted areas. The uninhabited areas are too steep, too rocky or too wet or marshy for residence, and in some small areas too thickly covered by ice caps. But glaciation, responsible for much in these forbidding conditions, has left inviting bunches of moraine, loops across valleys, and thin sheets of drift on some valley floors, all of which furnish usable building sites. Streams have hurried down from high levels and from the ends of melting glaciers, carrying quantities of rock waste which has been built into deltas at fiord heads or into fans along their sides. In most fiords these have suffered uplift more than once so that above the sea-level deltas now being constructed there are two or three others. Moreover, tiny areas of former sea floor and patches of moraine worked over by sea water, lie among the deltas along some valleys. All these sites have been appropriated for villages, groups of houses, and single residences.

The mouths of hanging valleys and tiny slanting "alps" contain a few dwellings. Talus slopes and alluvial cones where the depositing waters are not too unmanageable serve as building sites. Even cirque floors not far above sea level and floors at the ends of the fiords sometimes are used. Yet when all such places are occupied the population remains sparse and more than 90% of the land is actually unoccupied.

Specific instances will show how some of these sites are occupied. The city of Trondhjem spreads up from the water's edge over four levels of delta and sea beach (Figs. 1 and 2). The largest delta, about 180 feet above sea level, and small remnants of another, about 50 feet higher, offer suburban sites, while a much more continuous one somewhat lower makes a fine site for the university as well as many residences. The present delta is used by seagoing commerce with its warehouses. Upon it also stand the local market, most of the old stores, and old residences. Many scattered houses stand along the coasts on each side of the fiord where, on gentle slopes, grass and shrubs grow.

Going up the Rauma valley from Verma (Figs. 1 and 3), which stands on the present delta, one finds two higher deltas much dissected and above them quite a stretch of hummocky moraine, and dotted over all can be seen scattered farmhouses among gardens, patches of oats, poultry yards, and meadows. Many small barns contain the summer's hay crop which because of damp ground, drizzly rain, and lack of sunshine has been dried on wire fences or racks of poles. Merok (Fig. 1) is on a parcel of moraine at the head

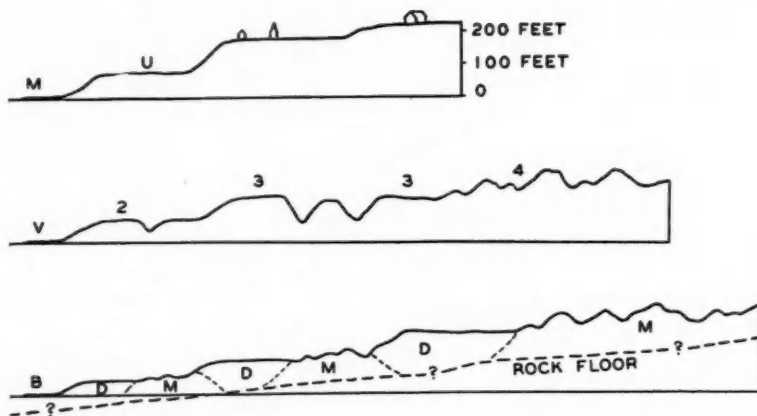


FIG. 2 (top profile)—Trondhjem site. M—market on the present sea level delta; U—university on the second; 3—church and residences occupy the third; 4—suburban homes on the fourth.

FIG. 3 (center profile)—Verma and the Valley of the Rauma. V—village of Verma near present water level; 2—a higher delta somewhat dissected; 3—the older delta much dissected; 4—the moraine above the deltas.

FIG. 4 (bottom profile)—Bergen site. The town is partly on the present delta "B", and is scattered up the valley over the higher deltas and moraine. The rock floor is only partly known but is glaciated and supports moraines (indicated by "M") and deltas (indicated by "D").

NOTE: datum is sea level in all three profiles.

of the present fiord and its fishing and commercial interests spread down over the new delta at water level.

In the valley leading up from Oie toward the divide and down to Hellesylt (Fig. 1), the several delta levels are found with the two upper forms much dissected, while their waste has been carried down and deposited as fans on the present delta (Fig. 5). These fans make the most attractive building sites, though the delta remnants are also occupied. Near the divide or pass, the moraine is occupied by several houses used for tourists in summer.

Up the Olden valley, from the town at the fiord head to Olden Lake, are irregular accumulations of drift, and definite loops of moraine lie across the valley. Most of the houses are on these loops, and the valley is the most populous one seen by the writer, probably because it is the most morainic. In another valley near, several water-power sites along the stream determine the location

of homes. In a third, two fox farms and the homes of the managers occupied talus slopes, while the moraine near by had one fox farm and several farm houses.

Moraine at Balholm on Sogne Fiord makes quite a town possible and with the small present delta offers a place for a "most attractive and popular fiord resort and a very important scenic center." Cirques or hanging-valley mouths along this fiord have two or three houses each, using level, well-drained, well-watered places near the pastures.

Bergen (Figs. 1 and 4) is on beaches and deltas of three or four levels up to 200 feet above the fiord. Worked-over moraine between the deltas and unmodified moraine above gives this old Hanseatic town a famous and efficient setting. Shores of the fiord, a brackish bay, and a fresh water lake are all used for residences and boat houses. At Ulvik, delta, marine terraces, and moraine combine to make a fine place for a little town. Talus covers the slopes, and houses, grass, and patches of forest go higher than usual. Farther up the valley slopes are steeper, talus is meagre, and human occupation is accordingly less. Yet since moraine is intermittently present all the way up to the pass and down to Voss one is never out of sight of houses.



FIG. 5—Delta at Oie; retouching makes the top of the high delta light. A fan of waste built on the lower delta carries several houses—the best place on the lower delta. Much of the town is out of sight on second delta.

Eidfjord at the seaward end of a long lake is on moraine near sea level that was worked over by sea waters during the building of high deltas above. Kleve at the other end of the lake is on deltas both recent and elevated. This lake communicates with the fiord by a channel through the moraine, useless for boats on account of rapids.

Toward the sea from Norheimsund or fiord (Fig. 6) the rocks are



K. K. BERGEN PHOTO.

FIG. 6—Stensdal near Norheimsund. A fiord valley now sufficiently filled with talus, moraine, and alluvial deposits to make excellent farming conditions. Forest on steep slopes.

more and more bare of soil and, although closer to the sea and outer fishing grounds, the houses become more scattered. Such a circumstance emphasizes the significance of the Quaternary deposits in the location of houses.

The Lapp and the *sæter* elements in the population do not correspond to the conditions described above. Their locations should have no weight in the conclusions to follow, because the Lapp has been pushed to the wall by his successors and takes any place he can get, and the shelter on the *sæter* is occupied by a summer stock-tender from the farms below who goes up the valleys and hills with the herds and returns with them as winter approaches.

This section would not be complete without calling attention to the specific places where men do not live. Great areas of the tops of hills, mountains, and the general upland are almost devoid of permanent homes because of lack or barrenness of soil and the rigors



of winter with cold and strong winds. Steep rock slopes are usually in no way occupied. Near the foot of steep slopes even on level valley floors are no houses, for fear of avalanches and landslides or even of the descent of loose individual boulders. The fear is not alone of the snow and stones but of winds generated by a slide. Houses have been pushed off their foundations by the rush of air from the path of an avalanche, while windows and doors are often broken if the house is too near. For this reason in the Olden valley, with a beautiful level floor and steep walls on either side, almost every house is near the center of the valley. Men are reluctant to place their houses on landslides, particularly if there is yet any lingering motion. Cones and fans of tumultuous streams are also left free of habitation. Some talus slopes, fans, and landslides are cultivated even when believed to be unsafe for homes; but usually they serve only as poor pastures (Fig. 7).



FIG. 7—Great alluvial cone near Oie. Such land forms are rarely used for residences.

#### INTERPRETATION

The question has been raised as to how much of the distribution of population is due to the topography and the materials of the land forms and how much is due to the occupations to which the citizen desires to give his attention. The men included in this study are engaged in five or six different pursuits. Fishing is common, agriculture, both the raising of crops and of stock, is also common. A goodly number are engaged in commerce, less in forestry, and but a

few in quarrying. In recent years and in some places the care of tourists is assuming profitable proportions.

Certainly no better places for raising crops, grass, cattle and sheep could be found than on these more or less level areas of loose sediments or till sheets. The industry could not well be elsewhere and prosper, hence one is warranted in the conclusion that the industry a man chooses if it is agriculture is very influential in determining where he shall live. But what of the fisherman? Much of the fishing is out in the more open channels or in the open sea, and if men lived out on the islands they would be much nearer their work. There is more sunshine out where the lands are low in the Skaargaard. Surely a fisherman would prefer to live out there. The contrary however is true. In every part of the coast zone visited, habitations become scarcer as one goes out into the open, lower, and sunnier zones. Even fishermen prefer to come in many miles for the privilege of living on the recent and pleistocene deposits.

Then comes the man engaged in commerce. These areas upon which numerous buildings have been noted often have shallow water near the shore, and some ships cannot come up to land. Farther out, near fiord mouths, water is deep and shores slope steeply below the water so ships can come close to warehouses. Yet men do not choose to build their warehouses out but rather well within the shoreline zone. Bergen is in 25 miles and Trondhjem 50. Moreover, this has been true since Hanseatic days. And boats go much farther in than Trondhjem to get forest products. The commercial centers are all on moraines, deltas, and marine terraces, and not out on rock-bound coasts. Forestry is a small industry in western Norway and lumber cutting has developed back among the inner channels and hills where there is much rock waste. Forests grow in the more favored places just as do men. The markets for forests products are largely on these loose deposits.

The tourist trade is transient. A few hotels are in places other than the Quaternary areas, but most tourist stores and hotels are found on these same recent deposits. The land covered with soil mantle and vegetation is more attractive than bare rock, food is gotten more easily, and so the tourist spends at least his nights on moraine and delta.

Quarrying, still in its infancy, follows the rockslopes, bare islands and other drift-free places. Here is another industry that is potent in directing where man shall live, and it persuades man to live on the bare rocks in spite of the lack of land forms and of mantling materials such as he seeks elsewhere.

It seems then that only one occupation, and that a minor one, leads man to live away from the forms noted—moraines, deltas, marine deposits, the shorelines of inner fiords, lakes, and streams; and that almost every permanent habitation is on waste deposits or at the water's edge near them.

#### THE FUTURE

In the series of geographic adjustments will man persist in living in these very restricted areas and kinds of places or will he strike out and occupy the whole land? Forecasting for a long range is unsafe and only suggestions will be made. The geographic influences now potent will probably remain the chief factors for a long time. The men who want to engage in agriculture are limited to the places having soil enough to support vegetation for man and beast. He who desires to trade must have his docks and warehouses within reach of the productive areas, hence he must keep near the agriculturist and forester. The fisherman surely will have no reason to change his habitat.

But the quarrying industry and possibly some manufacturing based on the products of that occupation might well invite man to some different localities. There are small areas of calcareous rocks (limestones and marble) upon which a cement or carbide industry might be built, some clay deposits that might be worked for tile or brick, and several fine granites and migmatites that could be quarried. Only such rock deposits as are near the sea stand much chance for development. Hence these would not take man away from the lower slopes and the water's edge, but they might well take him away from drift and delta deposits, for these cover the solid rock.

There remains for consideration the tourist business and its ramifications. Extra food such as milk, butter, meat, poultry, and fresh vegetables must be had for that occupation. Souvenirs, both of the purely ornamental types and of the types having uses and permanent values, are made in Norway now; and if the tourist trade should grow, toys, rugs, pillows, scarfs, draperies, knives, sweaters, and many other articles would be needed. But again these are all best made and sold near the coasts and on the bits of pleistocene deposits. Tourists will care more and more about going up the fiords to their very ends and away up the valleys leading to the glaciers and ice caps, the falls and rapids, even to the bare upland surfaces; and this extension of travel will call for roads, hospices, hotels, and lodges off the coast lines and recent deposits.

This development of the tourist industry is being thoughtfully studied by the Norwegian. The summer climate and scenery are very marketable and seem the most probable resources to be developed in the near future.

In conclusion, it has been shown that man in Norway has been extremely selective in his choice of home sites; and that very little but the growing tourist industry seems to promise any considerable change in his place distribution.

## The Prairie du Chien Terrace: Geography of a Confluence Site

GLENN T. TREWARTHA



FIG. 1—The Fox-Wisconsin portage route, with Prairie du Chien at its western terminus and Green Bay at its eastern end.

a half, a military post under three flags, a bustling river and railroad town of commercial fame during the third quarter of the nineteenth century—each of these successive tenures profited by the river location and the confluence site, and to a degree they all had their origins rooted in these facts of situation. The present town is a quasi-dormant community, with the same locational facts which were the *raison d'être* for the earlier forms of settlement, now acting to circumscribe its services and handicap its prosperity.

It may well be contended that a geographic study of any area requires no defense since it deals with a portion of the earth's surface. The Prairie du Chien terrace derives new interest not only because of the antiquity of its occupance and the variety of its cultural successions, but also because the historical geography of this site, for the two centuries following 1685, epitomizes that of the Upper Mississippi Country.

The fragment of outwash terrace within the Mississippi gorge, upon which the historic old town of Prairie du Chien stands, is situated just north of the junction of the Wisconsin river with the Mississippi (Fig. 1). This confluence terrace has been persistently occupied by a white settlement since the Revolutionary War period and for nearly a century earlier had been the intermittent rendezvous of the French *coureurs de bois* and the Indians as they bartered for furs. An Indian village, a frontier fur-trading community for nearly a century and

## I. THE NATURAL AREA

*Locational Facts.*—The juncture of the Wisconsin-Mississippi rivers was a strategic neighborhood for settlement during that era when canoes and other small hand-propelled craft were the prime carriers of inland trade, in-as-much as the Fox-Wisconsin waterway was the most convenient of the portage routes connecting the Great Lakes with the Mississippi.<sup>1</sup> A portage of only three-quarters of a mile separated the headwaters of the Fox from the great eastward bend of the Wisconsin, and in the spring, when the waters were high, canoes were able to pass from one waterway to the other without unloading.<sup>2</sup> The abundance of food in the form of game and wild rice along the route, together with the proximity of the profitable Sioux country to the western terminus of the waterway, gave it additional favor.<sup>3</sup> It would seem predictable therefore that some site in the neighborhood of the confluence, which at an early date became the focusing point for the water-borne aboriginal trade of the Upper Northwest country, would be chosen for strategic commercial and military occupation.

The particular site thus selected and at present partially occupied by the city of Prairie du Chien, is a depositional terrace on the east side of the Mississippi gorge, less than a mile north of the Wisconsin River (Fig. 2). Extending in a north-south direction for nearly 8 miles, and having a maximum width of  $1\frac{1}{2}$  miles, its total area approximates 7.8 square miles. The high walls of the Mississippi trench effectively limited the location of any settlement desiring to make use of the river, to the bottom of the gorge. Within the trench the floodplain, which occupies most of the bottom-land, is low, wet, subject to inundation and largely covered with forest. Thus the narrow and discontinuous terrace fragments, more elevated and consequently not subject to flooding, were, especially if bordered by a navigable channel, choice sites for settlements. Even today, these alluvial benches furnish the sites for nearly all of the important cities and villages along the Upper Mississippi.

The river gorge at Prairie du Chien is close to  $2\frac{1}{2}$  miles in width with the terrace, or "Prairie" as it is locally called, occupying  $\frac{1}{3}$  to  $\frac{1}{2}$  its breadth. The trench wall, here 400-500 feet high, abruptly

<sup>1</sup> Louise Phelps Kellogg, *The French Regime in Wisconsin and the Northwest* (Madison, 1925), 95; Frederick Jackson Turner, *The Character and Influence of the Indian Trade in Wisconsin*, in *John Hopkins University Studies in History and Political Science*, IX, 25.

<sup>2</sup> *Wisconsin Hist. Coll.* XII, 134-135.

<sup>3</sup> Turner, *op. cit.*, 25.



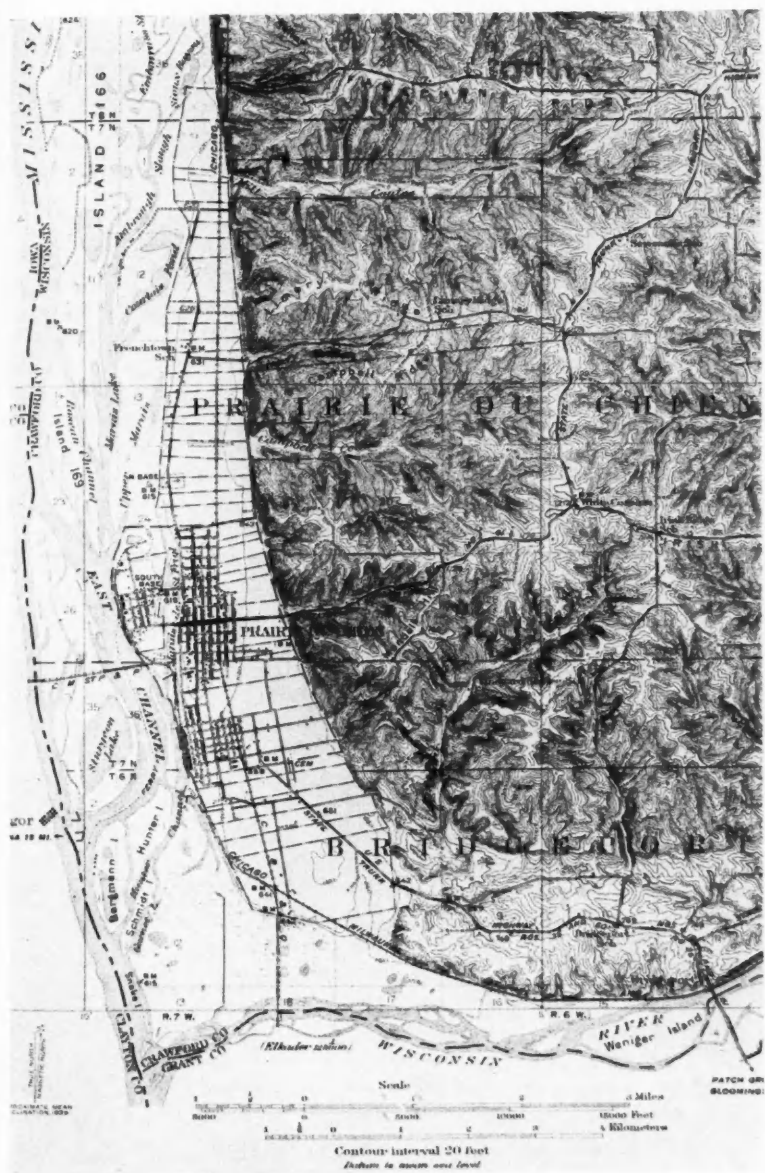


FIG. 2—The Prairie du Chien terrace just above the mouth of the Wisconsin River. The original French-Canadian farm-lot lines, extending from river to bluff, are shown. These were laid out during the late seventeen hundreds and surveyed in 1828. A representative section of the hilly unglaciated "umland" of Prairie du Chien is included in the illustration. Contour interval 20 feet. (Prairie du Chien Quadrangle, U. S. Geological Survey.)

terminates the terrace on the east. Where resistant limestone strata outcrop, the scarp is precipitous; on the weaker formations it is steep. A series of tributary valleys, locally designated *coulees*, breach the wall in half a dozen places, providing the only means of access to the upland.

Except on the east, the terrace fronts on tree- and grass-covered floodplain, containing the much braided courses of the rivers, together with numerous sloughs and swamps. In the vicinity of Prairie du Chien the main channel of the Mississippi flows against the base of the Iowa bluffs, so that only for a distance of a mile or a little more does a navigable portion of the river, known as East Channel, touch the margins of the terrace. It almost goes without saying that this stretch has been a strategic part of the Prairie front.

The uplands beyond the gorge, which are a part of the Prairie du Chien "umland," are typical hill country within the Driftless Area. Steep slopes predominate, but on the ridge crests and in the narrow valley bottoms there are restricted areas of near-level land. Relief averages 350-500 feet.

*Site Characteristics.*—The Prairie du Chien terrace is the remnant of a sand and gravel delta-fan deposited in the Mississippi trench by the glacial Wisconsin River.<sup>4</sup> Its upstream declination is indicative of this origin (Fig. 3). The slight northward dip of the surface, amounting to 40 or 45 feet in a distance of 7 or 8 miles is imperceptible. With increasing elevation to the south, however, the terrace margins become more distinct and abrupt, the descent to the floodplain in many places being over a steep embankment 20-35 feet high. Toward the north the margins are much less abrupt, it being difficult in places to know where the terrace ends and the floodplain begins. On the west, a slough known as the Marais de St. Friel separates a small segment of the terrace from the Prairie proper. This detached fragment, designated the "Island," low like the narrow northern part of the main terrace, is subject to inundation.

The Prairie's surface is characterized by slight relief; over large areas it has the appearance of being flat. The most conspicuous of the minor surface irregularities are (1) on the broader, higher southern portion of the terrace, some of them probably being original depositional forms and others the result of subsequent stream erosion, and (2) along the base of the bluffs where a series of small

<sup>4</sup>Lawrence Martin, *The Physical Geography of Wisconsin*, Bull. 36 of the Wisconsin Geological and Natural History Survey, (Madison, 1916), 145.

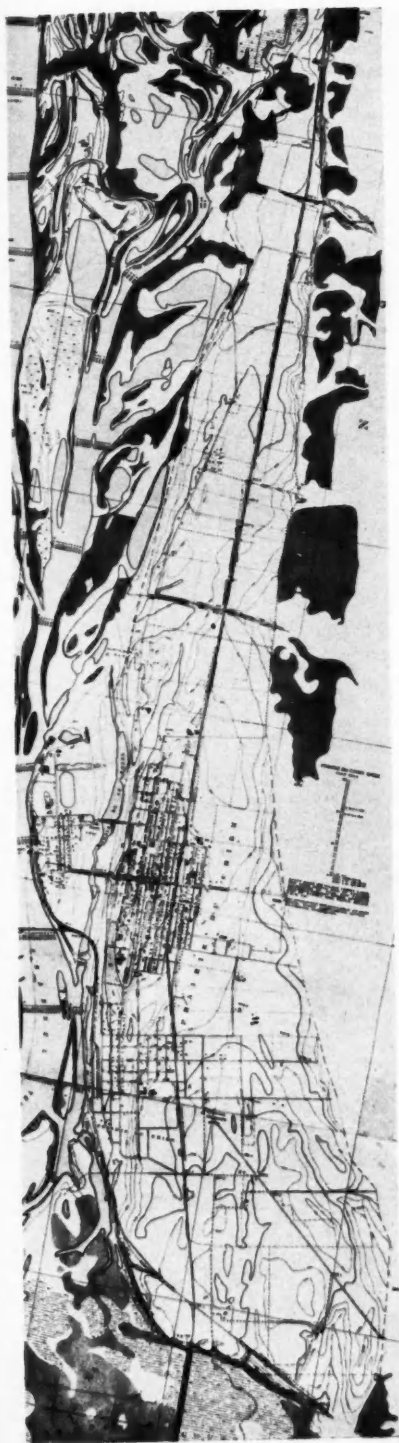


FIG. 3—Details of the surface relief of the Prairie du Chien terrace. Contour interval 5 feet. (Sheets 47 and 48 of the Upper Mississippi River, Hastings, Minn. to Grafton, Ill. Survey, 1929-1930: War Dept. Corps of U. S. Engineers, U. S. Army. Interpolations from Mississippi River Commission Chart No. 166, 1893-1894). The figures printed at intervals across the river refer to depths.

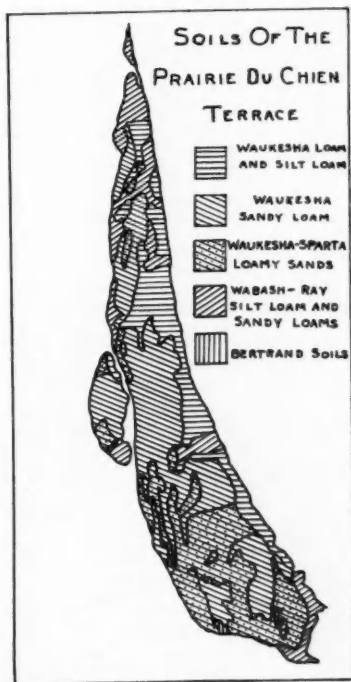


FIG. 4—Soils of the Prairie du Chien Terrace. The heavier soils are to be found in a piedmont belt near the bluffs. The southern part of the terrace is especially sandy. (Compiled and modified from field map and notes of U. S. Department of Agriculture, Soil Survey. Completed map and text still unpublished.)

alluvial fans, each at the mouth of a coulee, forms a narrow piedmont zone. The fans are absent at the extreme south, for here waters from the bluff have excavated a shallow north-south depression along the inner margin of the Prairie, forming an area of relatively poor drainage. Early settlers at Prairie du Chien reported that at times of high water canoes were able to ascend from the Wisconsin River to the Prairie by this route.<sup>5</sup> With one exception, the streams from the coulees are intermittent in character. At times of heavy rains however they carry such a volume of water and coarse debris as to endanger the agricultural land on the terrace. Consequently, in a number of instances artificially improved channels, with high embankments, have been constructed across the Prairie to carry safely away the flood waters. Much of the slope drainage however disappears in the coarse outwash material which fills the gorge to a depth of nearly 150 feet. Ground water in abundance is available at depths of only 25-40 feet.

The most significant contrast among the soils of the terrace is between the loams of the Waukesha series on the new alluvium of



FIG. 5—A soil profile where alluvium has been superimposed upon terrace gravels.

<sup>5</sup> Wisconsin Hist. Coll. IV, 249.

the piedmont zone, and the lighter sandier soils of the same series away from the bluff and overlying the outwash (Fig. 4). The broader southern part of the Prairie is especially sandy; so much so that some of the fields show ripple marks. Almost invariably the subsoils are assorted sands and gravels, so that crops usually suffer from drought in all but years of more than average rainfall (Fig. 5). In general all the soils of the Waukesha group, both light and heavy, are dark in color, having developed under a grass formation. The Wabash and Ray soils, alluvial in origin and containing considerable humus, are designated as first-bottom types since they occur at somewhat lower elevations where drainage is imperfect and overflow is occasional. Not infrequently these first-bottom soils develop under a tree cover, but Lucius Lyons who surveyed the Prairie in 1828 makes no mention in his field notes of trees occupying any part of the 43 farm lots on the terrace, describing it all as "a beautiful prairie," altho his map indicates scattered timber at its northwestern extremity<sup>6</sup>. At present some of the lowland used for pasture, along the northwest margin of the terrace, contains timber (maple, cotton-wood, birch and willow), while scattered oaks are found on the grasslands at its southern extremity.

The climate is continental, the average temperatures of January and July being 17.2° F. and 73.7° F. respectively. Because of its gorge location, Prairie du Chien has slightly higher temperatures at all seasons than places on the adjacent uplands. It is in the spring, however, that the temperature discrepancy between the two locations is greatest, the terrace at that season being 4-5° warmer, which is enough to be agriculturally significant. Except for the shore of Lake Michigan, Prairie du Chien's frost-free season of 167 days is the longest for any part of Wisconsin. Precipitation amounts to 31.7 inches, 71% falling in the 6 warm months. According to the Koeppen scheme of classification, Prairie du Chien has a Dfa climate.

## II. SUCCESSIVE CULTURES OCCUPYING THE TERRACE

### I. *The Pre-White Period of Exclusive Indian Culture (to 1685).*

It was not until the last quarter of the 17th century, after the French had reached the Mississippi, that the region adjacent to the mouth of the Wisconsin assumed strategic importance. When Jean Nicolet, the first white man to penetrate the Great Lakes

<sup>6</sup>Original field note book of Lucius Lyons in Land Survey Office, Wisconsin State Capitol. Photostatic copy of Lyon's map in Wisconsin Historical Library.

region beyond Georgian Bay, reached the western shores of Lake Michigan in 1634, western Wisconsin, including the present Prairie du Chien region, was a part of the hunting territory of the western Sioux and there they were the lords of the earth.

Within the next two or three decades following Nicolet's visit the Indian geography of Wisconsin underwent marked changes. Much of eastern Wisconsin had been occupied by Algonquian tribes fleeing westward before the fury of the Iroquois. At the same time the Sioux in western Wisconsin had withdrawn farther to the north, leaving the mouth of the Wisconsin a derelict region without inhabitants,<sup>7</sup> and so it probably remained for 50 to 75 years, until a Fox village was established on the terrace sometime during the first decades of the 18th century.<sup>8</sup> Caught as it was between the warring Sioux and Algonquians, and infested by predatory bands from one side or the other, it became a perilous region, a veritable "no-man's land."

Primary evidence of aboriginal tenure, both Siouan and Algonquian, of the Prairie du Chien terrace, were the numerous mortuary mounds which dotted its surface, some of them 10-20 feet high.<sup>9</sup> A century or more of cultivation on the Prairie has tended to obliterate most of them. In the old French village located on the "Island," a number of the better class residences were located on tumuli sites in order to escape the floods. Lapham states that in the inundation of 1826 the mounds were the only visible parts of the "Island," the rest being submerged.<sup>10</sup> Fort Shelby and the first Fort Crawford occupied an unusually large mound on the "Island," which at a later period was selected by the fur trader Hercules Dousman as the site for his mansion.

2. *A Fur Mart (1685-1812 and later).*

When in June 1673 Joliet and Marquette, with five *voyageurs*, following the Fox-Wisconsin route, discovered the Upper Mississippi, the way was opened for the French to commercially invade the lands of the western Sioux, and the era of the stockaded fur-trading post was inaugurated. Within less than a decade after the Joliet-Marquette discovery, LaSalle, with headquarters on the Illinois

<sup>7</sup> History of Crawford and Richland Counties, 94.

<sup>8</sup> *Ibid.*, 127. See also, Jonathan Carver, *Three Years Travels through the Interior Parts of North America* (Philadelphia, 1784), 34-35.

<sup>9</sup> History of Crawford and Richland Counties, 90; also, Lucius Lyons, *Field Notes of the Survey of Private Land Claims at Prairie du Chien*, (July 1828) Note C.

<sup>10</sup> Increase Lapham, *Antiquities of Wisconsin*, (Smithsonian Institution 1855), 66-67.



River, was hunting buffaloes near the mouth of the Wisconsin, while Duluth was trading in beaver farther up the Mississippi. La Salle, who was jealous of Duluth's trade, complained of his rival using the Fox-Wisconsin route, writing in 1682, "But if they go by the Ouisconsin where buffaloes are hunted in the summer and *where I have begun an establishment* they will ruin the trade on which alone I rely owing to the great number of buffaloes killed every year which is greater than one can believe."<sup>11</sup> It is evident from LaSalle's comment that the confluence region had already become such an important location that he planned to establish a post there, although authorities express doubt concerning its actual erection.<sup>12</sup>

A few years later, probably between 1685 and 1687, Nicholas Perrot founded a post near the mouth of the Wisconsin River, naming it Fort St. Nicolas. This had been urged upon Perrot by Miami Indians below the confluence, who were disinclined to make the trip to Green Bay where they were compelled to sell their furs cheap thru the Pottawattomies, who acted as middlemen.<sup>13</sup> Fort St. Nicholas was probably a crude, temporary, stockaded structure, serving for less than a decade before being abandoned. No mention is made of it by later explorers. Considerable controversy has developed over the site of the fort, but the majority of authorities agree that it was probably above the mouth of the Wisconsin on some part of the Prairie du Chien terrace.<sup>14</sup> So from 1685 on, if not continuously occupied by white man, the confluence terrace was held by him as a stopping place in his fur-trading operations.

During the last decade of the 17th century and the first three or four of the 18th, French posts thruout the West were abandoned and the Fox-Wisconsin portage route ceased to be of great importance. This was due to a number of causes, among them a war with the British and their Iroquois allies and the ascendancy of the anti-imperialists in France. But of chief significance was the hostility of the Fox Indians toward French trade with their enemies the Sioux, who were thereby being provided with firearms and ammunition. The route was made precarious during the last decade of the 17th century, and came close to being abandoned altogether during the Fox wars which occupied the first four decades

<sup>11</sup> Margry II, 254; in Wis. Hist. Coll. XVI, 110.

<sup>12</sup> Kellogg, *op. cit.*, footnote 58, 213.

<sup>13</sup> La Potherie II, 244-276, in Wis. Hist. Coll. VI, 146-151.

<sup>14</sup> Wis. Hist. Coll. X, 54-63, 307-320, 320-372.

of the 18th century. During this period of more than half a century there is no record of occupance adjacent to the confluence.

By 1740, with the Fox wars ended, the Fox-Wisconsin route almost immediately began to regain its importance as a trade thoroughfare. At about this time a Fox village was established on the confluence terrace and Jonathan Carver, visiting the place in 1766, wrote concerning the settlement; "... it is a large town, and contains about 300 families, the houses are well built after the Indian manner and pleasantly situated on a very rich soil, from which they raise every necessity of life in great abundance.<sup>15</sup> From the Fox chief of the village, called "Alim," which means "the dog," the terrace and the later white settlement built upon it, derived their French name, Prairie du Chien. In addition to the natural advantages of the site at the focus of the waterways, the Indian village on the Prairie became a further reason for the traders going to and from the Sioux country by the Fox-Wisconsin route to rendezvous at this point.<sup>16</sup>

Sometime about the middle of the century (probably in 1755) a new French stockaded post was established on the southwestern margin of the terrace overlooking Pig's-Eye Slough<sup>17</sup> (Fig. 7). The Old French Fort, or Pig's Eye Fort, as it is variously designated, was a small log barracks surrounded by a palisade enclosing nearly 2 acres. It was probably used for trading purposes, having a storehouse for furs and outfits for traders, and was protected by a small military guard. The enclosure contained a well and part of the area was perhaps used as a garden. The whole establishment was designed so that it could be used for military purposes in an emergency. Remnants of the three or four chimney piles and the trench of the old fort were conspicuous as late as 1880. It was located on the west end of what was later designated as Farm Lot 39 and within that block of first ward in modern Prairie du Chien bounded by Front, Water, Lessard, and Paquette streets<sup>18</sup> (Fig. 15). The site had advantages, for it was on a high bank and the first place after leaving the mouth of the Wisconsin that a boat could land on the Prairie.

There are good reasons for believing that the arrival of the first permanent white settlers was contemporaneous with the establish-

<sup>15</sup> *Op. cit.*, 34-35.

<sup>16</sup> Turner, *op. cit.*, 39.

<sup>17</sup> Wis. Hist. Coll. IX, 282-302, 468; X, 307-320, 320-372.

<sup>18</sup> Wis. Hist. Coll. X, 335-338; Wis. Hist. Coll. IX, map, 288 and footnote, 289.

ment of Pig's-Eye Fort, altho the evidence is not conclusive.<sup>19</sup> Carver, described the Indian village located there but made no mention of a white settlement or of a French Fort.<sup>20</sup> On his map of 1769, however, there is a symbol with the words, "Lower Town," placed just above the confluence. Schoolcraft, who was at Prairie du Chien in 1820, stated that there had been an earlier white settlement on the terrace, in existence during the period of French control, about a mile below the village of that day, "but it was abandoned, chiefly on account of its unhealthy situation, being near the border of an extensive trace of overflowed grounds."<sup>21</sup>

By the fourth quarter of the 18th century the confluence site had become the great fur trading mart of the Upper Mississippi country. Here the white traders met the Indians for a period of 3-4 weeks in both spring and fall, in autumn to equip and send out trapping parties for the ensuing winter, and in spring to collect the furs and send them on to Mackinac, or less likely, to New Orleans.<sup>22</sup> Peter Pond, a Connecticut trader who came into the region in 1773, gives a picturesque and significant description of the Prairie and the magnitude of the fur trade as of that date: "Next Morning we Recrost ye River which was about a Mile Brod and Mounted about three Miles til we Come to the Planes of the Dogs (Prairie du Chien) so Cald the Grate Plase of Rondavues for the traders and Indans Before thay Dispars for thare Wintering Grounds. Hear we Meat a Larg Number of french and Indans makeing out thare arrangements for the InSewing winter and sending of thare canoes to Differant Parts—Like wise Giveing Creadets to the Indans who ware all to Rondoveuse thare in Spring. . . . All the traders that Youseis (uses) that Part of the Countrey & all the Indans of Several tribes Meat fall & Spring whare the Grateist Games are Plaid Both by french & Indans. The french Practis Billiards—ye latter Ball. Hear the Botes from New Orleans Cum. Thay are navigated By thirtey Six men who row as maney oarse. Thay Bring in a Boate Sixtey Hogseats of Wine on one . . . Besides Ham, Chese &c—all to trad with the french & Indans. Thay Cum up the River Eight Hundred Leages. These Amusements Last three or four weakes in the Spring of the Year."

Concerning the spring rendezvous he wrote, ". . . we Came to

<sup>19</sup> Wis. Hist. Coll. X, 320-372; American State Papers: Public Lands, III, 385.

<sup>20</sup> Carver, *op. cit.*, 34-35.

<sup>21</sup> Henry R. Schoolcraft, *Narrative Journal of Travels of American Lakes to the Sources of the Mississippi in the year 1820.* (Albany, 1821), 338.

<sup>22</sup> Carver, *op. cit.*, 34-35; Wis. Hist. Coll. XVIII, 339-341.

the Plane where we Saw a Large Collection from Eavery Part of the Misseppey who had arrived Before us—Even from Orleans Eight Hundred Leages Belowe us. The Indans Camp Exeaded a Mile & a Half in Length. Hear was Sport of all Sorts. We went to Colecting furs and Skins. . . . By the Different tribes with Suckess. The french ware Veray Numeres. Thare was Not Les than One Hundred and thirtey Canoes which Came from Mackenaw. Caring from Sixtey to Eightey Hundred wate Apease all Made of Birch Bark and white Seder for the Ribs. Those Boates from Orleans & Ilenoa and Other Parts ware Numeres. But the natives I have no true Idea of their numbers. *The Number of Packs of Peltrey of Different Sorts was Cald Fifteen Hundred of a Hundred wt Each which went to Makana.* All my outfitts had Dun well. I had Grate Share for my Part as I furnish Much the Largest Cargo on the River. After all the Bisness Was Dun and People Began to Groe tirde of Sport, thay Began to Draw of for thare Differant Departments and Prepare for the Insewing winter."<sup>23</sup> Peter Pond's statement that 150,000 pounds of peltry left Prairie du Chien for Mackinac in the Spring of 1774 is the first reliable figure concerning the magnitude of the fur trade at the confluence settlement.

Carver wrote, "This town is the great mart where all the adjacent tribes and even those who inhabit the most remote branches of the Mississippi annually assemble about the latter part of May, bringing with them their furs to dispose of to the traders."<sup>24</sup> He likewise observed that Prairie du Chien had become a neutral ground for the various Indian tribes and no acts of hostility were even committed while they were temporarily encamped there.

Although white settlers may have resided on the terrace since the mid-seventeen-hundreds, it is possible that a permanent white village was not in existence until about 1781, in which year three French-Canadians built homes upon the Prairie.<sup>25</sup> Within the next few years a goodly number of traders and *voyageurs* settled at Prairie du Chien. Lieutenant Zebulon Pike, arriving there in 1805, stated that there were 34 residences on the terrace. The principal nucleus, consisting of 18 houses arranged in two streets, 16 in Front street and 2 in First street, were on the detached fragment of terrace west of the Marais de St. Friol, on a high bank overlooking East Channel. This was the village of Prairie du Chien. East of

<sup>23</sup> Wis. Hist. Coll. XVIII, 339-341.

<sup>24</sup> Carver, *op. cit.*, 35.

<sup>25</sup> History of Crawford and Richland Counties, Wisconsin (1884), 270, 276, 280. Wis. Hist. Coll. XI, 249-250.

the slough on the west bank of the main terrace were 8 houses comprising the village of St. Friol, and 8 more were scattered over the Prairie. They were constructed by planting poles or logs upright in the ground, mortising between the uprights with round poles or split timbers, daubing the outside with clay, and finishing off with a coat of whitewash. Not infrequently the residences were surrounded by picket stockades. Estimating 10 persons to a house, Pike placed the white population of the Prairie at 340, this number being swelled to 500 or 600 in spring and autumn.<sup>26</sup> The population, composed as it was of French-Canadian fur traders with Indian wives and swarms of half-breed children, was little interested in tilling the soil, consequently the terrace surface was not markedly altered. Vegetables and a little wheat were grown adjacent to the residences, while numerous ponies and a few cattle, brought up from the Illinois country, grazed on the prairie grasses.<sup>27</sup>

3. *A Fortified American Frontier Post (1812-1850).*

From the War of 1812 until 1849 when Fort Crawford was finally abandoned, Prairie du Chien was pre-eminently a frontier military post. At the time of the War of 1812, as a result of which genuine American control was for the first time established in the Upper Mississippi valley, it was the most important trading post on the river, in the heart of the Indian country, the depot of the fur traders, and the gathering place of the Indians who had made it a neutral ground.<sup>28</sup> In spite of the fact that by the American Revolution this Upper Mississippi country had passed to the United States, the British did not evacuate their posts until 1796 and they continued to hold their trade until the close of the War of 1812. Both nations realized the significance of the confluence settlement.<sup>29</sup> Even before the War of 1812 Nicolas Boilvin, the government Indian agent at Prairie du Chien, had advised the Secretary of War that a garrison at Prairie du Chien could divert the current of Indian trade on the Upper Mississippi away from Canada and put an end to the "subsisting intercourse between the Canadian traders and the Indians."<sup>30</sup>

Early in the War of 1812 the British captured Mackinac and sent an agent to Prairie du Chien to organize the western tribes in the

<sup>26</sup> Zebulon M. Pike, *Exploratory Travels Through the Western Territories of North America* (London, 1811), 20-21.

<sup>27</sup> Wis. Hist. Coll. XII, 135.

<sup>28</sup> Bulger, Wis. Hist. Coll. XIII, 1.

<sup>29</sup> Bruce E. Mahan, *Old Fort Crawford and the Frontier* (Iowa City, 1926), 49-53.

<sup>30</sup> Wis. Hist. Coll. XI, 247-253.

British cause. He was so successful that the American authorities felt compelled to strike a blow at this threatened British control of the Upper Mississippi, so in the summer of 1813 a military expedition of about 200 men arrived at Prairie du Chien. There, on a large Indian mound just in the rear of the main village on the "Island," (a site now occupied by the Dousman mansion, Fig. 15), was erected a small log fort, surrounded by oak pickets, which was christened Fort Shelby.<sup>31</sup> Upon hearing of the presence of the Americans at Prairie du Chien, a force of Canadians was immediately dispatched from Mackinac to recapture the place, which they did, renaming the post Fort McKay and occupying it until the close of the War.

The end of the conflict found the influence of the British traders over the Indians of the Upper Northwest still strong. To break this hold upon the Indians and to preserve peace among them, as well as to prevent further smuggling of British goods to the Mississippi, the American government determined to establish military posts, Indian agencies and fur trading factories at strategic locations. A new fort known as Fort Crawford (Fig. 6) was immediately begun on the indential site occupied by Fort Shelby or Fort McKay, about 150 yards back from the river.<sup>32</sup> Lots 1-12 at the north end of the main village were confiscated by the Commandant and their owners evicted. Certain of the houses in front of and near the post were razed while others were retained for public use. The evicted residents were given lots at the lower end of the village.

The fort, with the exception of the powder magazine, was constructed entirely of squared oak logs and pickets. It was built in the form of a hollow square, 340 feet on a side, with the rear walls of the barracks forming the faces of the work. Blockhouses occupied two corners of the structure.<sup>33</sup>

The general situation of the new fort at the Mississippi-Wisconsin confluence and commanding the most strategic water route to the Great Lakes and to British territory (Fig. 1), was eminently satisfactory. The site was selected chiefly because of proximity to a navigable channel of the river, since all supplies had to come by water (Fig. 3). Nearness to the village was both asset and liability, for while it made protection of the settlement relatively easy, tippling shops and other vices in the village were serious distractions

<sup>31</sup> Wis. Hist. Coll. XI, 264; IX, 195.

<sup>32</sup> Mahan, *op. cit.*, 71.

<sup>33</sup> Major Stephen H. Long, *Voyage of a Six-oared Skiff to the Falls of Saint Anthony in 1817* (Philadelphia 1860), 56-57.



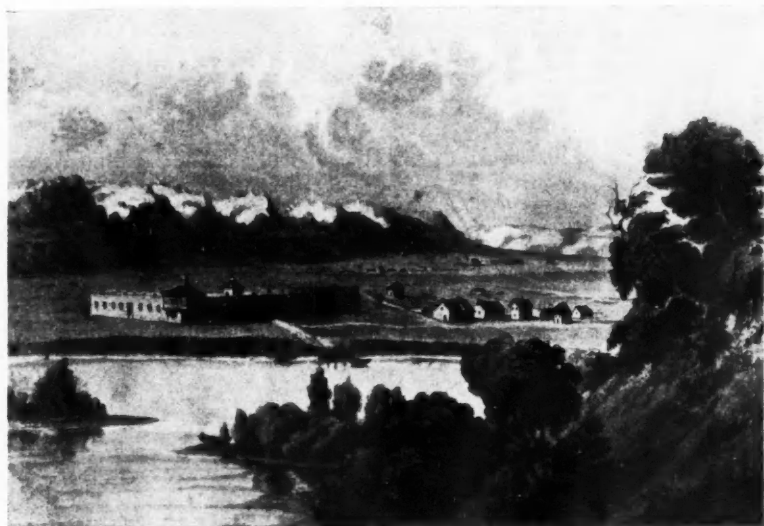


FIG. 6—The first Fort Crawford, erected in 1816. This was a log fort located on the "Island" west of Marais de St. Friol and at the north end of the village. See Figure 7 or 15 for site.

to the soldiers. Major Long, who visited the Fort in 1817, had little good to say for the site. First among his objections was to its unhealthy situation being surrounded on nearly all sides by marsh and stagnant water. Its low elevation allowed it to be inundated at times of high water, necessitating on several occasions temporary abandonment of the fort for higher ground. From a military point of view Major Long objected to the site because it did not have complete command of the river, the view being obscured by the numerous islands in the stream.<sup>34</sup> Timber for fuel seems to have been scarce in the neighborhood of the fort for the soldiers were compelled to go two or three miles for an adequate supply, one third of the garrison sometimes being absent from quarters on fuel duty.<sup>35</sup>

During the first and second quarters of the 18th century the rural landscape of the Prairie underwent important changes. When Lucius Lyons surveyed the terrace in 1828 there were 43 farms comprising a series of linear strips of land 35-60 rods wide extending

<sup>34</sup> Mahan, *op. cit.*, 76-77.

<sup>35</sup> Wis. Hist. Coll. II, 122.

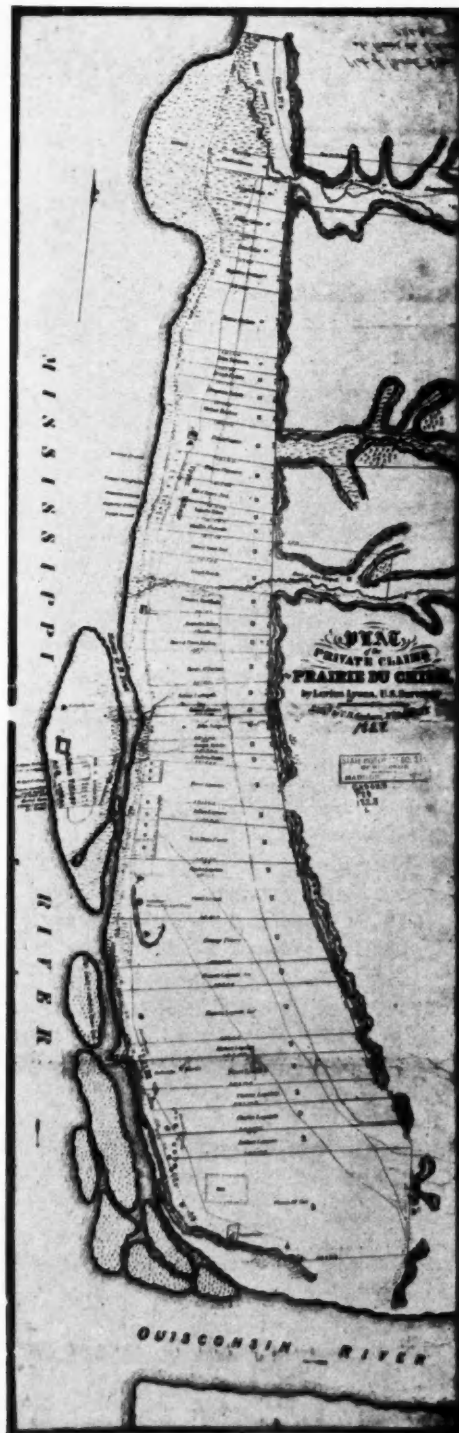


FIG. 7—Lucius Lyons' map of the Prairie du Chien settlement in 1828, from a survey by the Federal Government. Note the long, narrow farm lots reaching from river to bluff. Three settlement nuclei are indicated, the principal one, designated as Prairie du Chien, located west of the slough on the "Island." Fort Crawford is shown at the north end of the village. East of the slough is the settlement of St. Friol and up the Prairie some distance a cluster of residences known as the Upper Village. The location of the Old French Fort of 1755 is shown at the west end of Farm Lot 39. The dotted lines are trails. The north-south line, made up of zig-zags, toward the eastern margin of Prairie, represents a fence which separated the cultivated lands from the Prairie proper. (Photostatic copy of map in the Wisconsin Historical Library.)

from river to bluff after the French method of land subdivision in reverain regions (Fig. 7). The cultivated parts of these farm lots formed a narrow strip 40-80 rods wide at the base of the bluff where existed the more fertile alluvial soils. This strip was enclosed in one common field 5-7 miles long, know as the "Grand Farm" and having but one fence and that on its west side, the bluff answering for a fence on the east. The boundaries of the farm lots were marked off by roads allowing entrance and exit from the fields which each contained.<sup>36</sup> Crops were entirely spring-sown and consisted mainly of wheat, barley, oats and peas, together with some potatoes and onions.<sup>37</sup> Any excess in crops was sold to the traders, the garrison, or bartered to the Indians for wild fowl and skins. Lockwood stated there was no maize grown on the Prairie when he arrived in 1816 but by 1835 Brunson wrote that the farmers were planting an early Indian variety of corn, yielding 30-50 bushels per acre.<sup>38</sup> As soon as the crops were harvested the fields were thrown open to livestock. The poorer western part of the Prairie, known as the "Common" was roamed over by the very ordinary ponies and cattle of the inhabitants.

During the first two or three decades of the 19th century the village changed little in appearance and, if at all, for the worse. The composition of the population, a slovenly, lazy group of French-Canadians and half-breeds, living in parasitic fashion upon the Indian trade and the garrison, argued against any advance or improvement in the settlement. In addition, game was less abundant than several decades earlier, and the Indians were hunting less, since they were receiving subsidies at Prairie du Chien from the government. The fur-trade, which had been the reason for the establishment of the settlement, was waning. Lockwood, a resident of the community, wrote that at the time he arrived at Prairie du Chien (1816) there were collected at that place annually about 300 packs of furs of 100 pounds each.<sup>39</sup> This was only one-fifth the weight of pelts taken to Makinac from Prairie du Chien in 1774.<sup>40</sup> Most of the fur was still being sent to Mackinac altho an increasing amount was going south to St. Louis with the lead from Galena and Dubuque.<sup>41</sup>

<sup>36</sup> Wis. Hist. Coll. II, 120.

<sup>37</sup> *Ibid.*, 112.

<sup>38</sup> History of Crawford and Richland Counties, 410-413.

<sup>39</sup> Lockwood, Wis. Hist. Coll. II, 131.

<sup>40</sup> Wis. Hist. Coll. XVIII, 339-341.

<sup>41</sup> Mahan, *op. cit.*, 82.

A number of fragmentary descriptions by eye witnesses of the village during the second and third decades are available but these accounts do not agree in all respects. Major Long, who was on the Prairie in 1817 and again in 1823, wrote, on the earlier date, "Exclusive of stores, workshops and stables, the village at present contains only sixteen dwelling houses occupied by families. These are situated on a street parallel with the river, and almost one half mile in length. In the rear of the village, at the distance of three-quarters of a mile, are four others. Two and a half miles above are five; and at the upper end of the prairie, five miles from the village, are four dwelling houses. Besides these there are several houses situated upon the different parts of the prairie, in all not exceeding seven or eight, so that the whole number of family dwellings now occupied does not exceed thirty-eight. If we compare the village and its inhabitants in their present state with what they were when Pike visited this part of the country, (1805) we shall find that instead of improving they have been degenerating."<sup>42</sup> Again in 1823 Long wrote, "The village consists, exclusive of stores, of about twenty dwelling-houses, chiefly old and many of them in a state of decay; its population may amount to 150 souls.\* It is not in as thriving a situation as it formerly was."<sup>43</sup> Schoolcraft, visiting the place in 1820, described it as follows: "It consists of about eighty buildings, including the garrison, the principal parts of which are of logs arranged in two streets parallel with the river and is estimated to have an aggregate population of 500. This is exclusive of the garrison . . ."<sup>44</sup> "The village has the old and shabby look of all the antique French towns on the Mississippi, and in the lake basins, the dwellings being constructed of logs and barks and the courtyards picketed in as if they were intended for defense."<sup>45</sup> Major Long, it should be noted, counted only *occupied dwelling houses* while Schoolcraft's figure of 80 buildings included all buildings, those associated with the garrison as well. The census of 1820 gave the Prairie du Chien settlement a population of 501, of which

<sup>42</sup> Long, *op. cit.*, 61-62.

\* Refers to main village only.

<sup>43</sup> William Keating, *Narrative of an Expedition to the Source of the St. Peter's River, Lake Winnepeek, Lake of the Woods, etc.* (Philadelphia, 1824), 237.

<sup>44</sup> Schoolcraft, *op. cit.*, 337-338.

<sup>45</sup> Henry R. Schoolcraft, *Summary Narrative of an Exploratory Expedition to the Sources of the Mississippi River in 1820* (Philadelphia 1835), 167. See also *Wis. Hist. Coll.* II, 119; XX, 60 and *A Journal of Life in Wisconsin One Hundred Years Ago* kept by Willard Keyes of Newfane, Vermont, in *Wis. Mag. of Hist.*, III, 338-363 (353).

number 370 were residents, while 131 belonged to the garrison.<sup>46</sup> Pike estimated the population at 340 in 1805.

It is evident from the preceding descriptions that the village had changed little in the two decades or more following Pike's visit in 1805. The main village on the "Island" had been rearranged somewhat, as previously described, by the erection of Fort Crawford at its northern margin, but its pattern and the number of its dwellings were essentially the same. A log jail, for Prairie du Chien had become the county seat, the rock storehouses of Hudson Bay and Astor Fur companies, and the Brisbois mansion, also of stone, had been added. The St. Friol unit east of the slough, where Pike mentioned 8 houses, had only 4 occupied in 1817. Here had been erected the rock warehouse of the Northwest Fur Company.

The terrace had lost none of its significance as a gathering place for the Indians; quite the opposite, for with the erection of Fort Crawford, Prairie du Chien became the site for important treaty councils between high officials of the United States government and the Indian tribes of the whole upper Northwest. At the first of these assemblies, known as "The Great Council of 1825," native tepees covered the Prairie so that late comers were forced to pitch their high-pointed buffalo tents on the islands in mid-stream and on the Iowa side. The council lasted for two weeks, costing the government in rations and other expenses \$10,400.<sup>47</sup>

By the close of the third decade the old fort on the "Island" was so rotted and decayed as a result of frequent inundations as to be almost untenable. The then occupied site was deemed unsatisfactory not only for reasons concerned with health, but likewise because of the proximity of saloons in the adjoining village. In 1829, the commandant was instructed to select a site for a new fort and "... to consider health, comfort, and convenience in making his choice with particular attention to accessibility to the river as all supplies had to come over this course."<sup>48</sup> The site chosen was an elevated spot designated as "Large Mound" on the Lyons map of 1828, being near the western end of Farm Lot 34, fifty feet above the river and distant from it several hundred feet (Fig. 7). In addition to being well above flood level, it was the only place on the main terrace, according to the maps of that day where a navigable channel of the Mississippi touched the Prairie. At the present time a mud flat has cut off this one point of access. Not only were Farm

<sup>46</sup> Census of Michigan Territory for 1820. Copies in Wis. Hist. Library.

<sup>47</sup> Mahan, *op. cit.*, 94.

<sup>48</sup> *Ibid.*, 124.

Lots 33 and 34, fronting on the slough, purchased by the government, but in addition 5-6 acres along the western end of Farm Lot 35, which was the section bordering navigable East Channel.<sup>49</sup>

The new Fort Crawford was an imposing stone structure (Fig. 8).

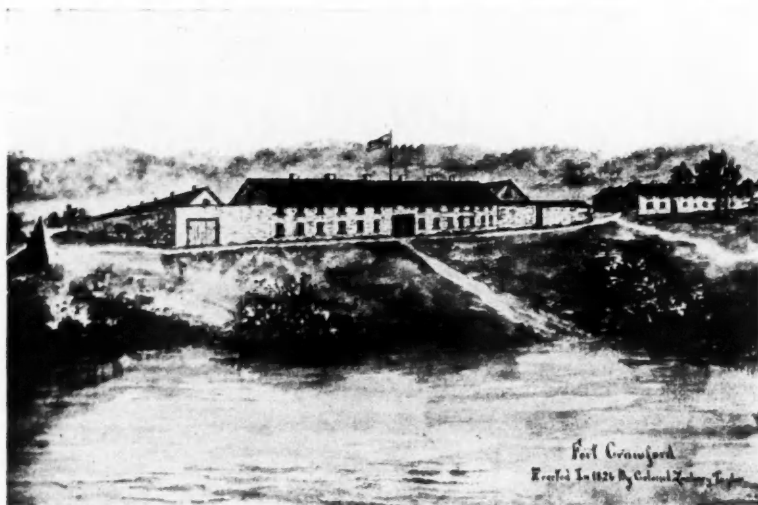


FIG. 8—The Second Fort Crawford, erected in 1829-1831 on the main terrace. The site chosen was the spot designated on the Lyons map (Fig. 7) as Large Mound at the western end of Farm Lot 34, close to where East Channel touched the main terrace.

It consisted of an enclosure, rectangular in shape, measuring 375 feet east-west by 242 feet north-south. The north and south walls were formed by a stockade of pine logs, with the buildings used for officers quarters and store-rooms marking the limits of the enclosed parade grounds on these sides. Two barracks, each 175 feet long, and separated by a sally-port, formed the east and west walls of the structure.<sup>50</sup> The level prairie between the Fort and the bluffs was used as a drill ground.

With the transfer of the garrison to the new fort in 1832, Old Main Village on the Island declined in importance, while the St. Friel nucleus adjacent to the post began to grow rapidly. In 1828 there were only five houses in St. Friel but by 1835 it was the principal

<sup>49</sup> *Ibid.*, 126.

<sup>50</sup> *Ibid.*, 138-139.



residential unit on the Prairie<sup>51</sup> and contained two stores and two inns.<sup>52</sup> Within the next few years, a jail, court house and postoffice were erected in the "New Village," or the "American Town" as it was called, since it contained the few American families on the terrace. Old Main Village west of the slough was a group of "... rude and ruinous dwelling houses, which are almost black with age. . . ." <sup>53</sup>

After 1835, with the suppression of the Winnebago uprising and the close of the Blackhawk War, agricultural immigrants began flocking thru Prairie du Chien enroute to the virgin lands of Iowa and Minnesota, some of them remaining on the Prairie. Coincident with the slight boom associated with this migration, a new town was laid out south of the Fort so that Prairie du Chien became tri-nuclear in structure, altho little building took place in the new subdivision at the time. The territorial census of 1836 gave Crawford County (at that time the western half of Wisconsin) a population of 850, 313 of whom were at Fort Crawford.<sup>54</sup> Most of the remaining 537 were residents of the confluence terrace. By 1840 the population of Crawford County had reached 1502, nearly 1300 of whom were in the Town of Prairie du Chien.<sup>55</sup>

But prosperity was shortlived. Within the decade 1840-1850 the Indians were moved across into Iowa and no longer received their annuities at Prairie du Chien. Fort Crawford was permanently abandoned in 1849. As a result, gamblers, liquor dealers, traders and hangers-on who had lived in parasite fashion on the garrison and the Indian trade, soon quit the town. "Population dwindled with startling rapidity, while empty, unpainted houses with windows broken and roofs fallen in, and abandoned storerooms gave the place a desolate appearance."<sup>56</sup>

Thus the middle of the century found Prairie du Chien town with a population of 1407,<sup>57</sup> only slightly more than it had been ten years earlier. The fur trade was a thing of the past; the military importance of the site had waned to insignificance; the Indian market had vanished, and that of the garrison as well. Immigrants were pouring into Iowa and Minnesota, but only a few were re-

<sup>51</sup> Wis. Hist. Coll. 379.

<sup>52</sup> Journal of General William Randolph Smith, in Wis. Mag. of Hist., 12, 303.

<sup>53</sup> C. F. Hoffman, *A Winter in the Far West* (London 1835), II, Appendix, Note A, 1.

<sup>54</sup> Wis. Hist. Coll. XIII, 249.

<sup>55</sup> U. S. Census of 1840.

<sup>56</sup> Mahan, *op. cit.*, 266.

<sup>57</sup> Census of Wisconsin, 1850.

maining on the Prairie or in the town. Confluence location had ceased to be a benefit; quite the contrary, it was now a handicap, for the position of the town between the two rivers reduced greatly its natural trade territory.<sup>58</sup> Dark days had fallen upon Prairie du Chien.

4. *The Commercial City: A Rail and River Junction (1850-1885).*

Following the temporary slump at mid-century, consequent upon the transfer of the Indians into Iowa and the evacuation of Fort Crawford, almost immediately Prairie du Chien swept into the biggest boom period of its entire history. The immediate cause of the boom was the selection of the Old Fort Town at the confluence as the river terminus of the Milwaukee railroad. The half-century mark had scarcely passed before rivalry became intense among the river towns from Galena and Dunleith (East Dubuque) northward as they urged their respective advantages as terminals for the new railroad building westward from Milwaukee. The Wisconsin valley route, because of its directness and easy grades, very early received the approval of the railroad's engineers.<sup>59</sup> Already by 1852, four to five years before the arrival of the first train, the likelihood of Prairie du Chien becoming the rail terminus had instilled new life into the ancient town.<sup>60</sup> The Crawford County Courier for February 16, 1852 carried the statement, "At the present time every tenatable building in town is occupied, and the garrison is also full."

The material expansion of the village took place very largely within the two nuclei on the main terrace, one to the north, the other to the south of the Fort Crawford Military Tract, which effectively separated them. During the building season of 1857, the year the rails reached the river, 327 buildings were completed or put under construction on the Prairie, 161 in Upper Town, 141 in Lower Town, 17 west of the slough in the Old Village, and 6 in French Town (Upper Village on Lyons' map), 2½ miles north of the city.<sup>61</sup> The fort building was occupied by 50 families and contained several workshops.<sup>62</sup> At that time the town could boast

<sup>58</sup> In the *Prairie du Chien Patriot* of March 8, 1848, the editor stated that the town was handicapped in making a normal growth because of its trade territory being limited by the Wisconsin and Mississippi rivers, ferry service across these streams being expensive.

<sup>59</sup> *Crawford County Courier*, July 7, 1852, and August 11, 1852.

<sup>60</sup> *Crawford County Courier*, Dec. 29, 1852.

<sup>61</sup> *Prairie du Chien Leader*, Sept. 19, 1857.

<sup>62</sup> *Ibid.*

of having seven hotels, one steam flour mill, one steam saw mill, two breweries, one foundry, three lumber yards, five brick yards, and four lime kilns.<sup>63</sup> Boat traffic at Prairie du Chien's wharves received sudden stimulation by reason of the coming of the railroad and the increased material prosperity of the city, steamboat arrivals averaging 70-80 a week.<sup>64</sup> Two steam ferries, one serving Upper Town and the other Lower Town, plied between the Iowa and the Wisconsin shores. Within less than a decade the confluence settlement had become an important rail-water trans-shipping point on the Upper Mississippi.

The sudden and extraordinary growth of Lower Town, which prior to 1850 had fewer than half a dozen houses,<sup>65</sup> was due to a belief that the railroad's terminal facilities would be located in that part of the city. Expectations were correct and depot, round-house, grain elevator, and wharves were all erected south of the Fort on the margin of the slough. The first street back from the river and parallel with it in both Lower Town and Upper Town became the main thoroughfare, containing most of the business houses.<sup>66</sup>

Prior to the Confederate blockade of the Lower Mississippi, wheat and other farm produce from the newly settled lands of Iowa and Minnesota in a large measure had gone south by boat to New Orleans. With that route closed, this trade shifted immediately to the east-west rail lines, which very fortunately had reached the Mississippi at La Crosse, Prairie du Chien, Dunleith and other cities farther south just a few years previously. Eastbound freight movements from these rail terminals on the river shot upward, so that while only 35,000 tons of east-bound freight left Prairie du Chien in 1860, it reached 100,599 tons in 1861, the first year of the War.<sup>67</sup> The river boats had changed from competitors of the railroads to their feeders, collecting the agricultural produce at various points along the stream and unloading it at the rail terminals. Although the steam ferries transferred considerable freight from McGregor on the Iowa side to Prairie du Chien during the warmer months, it was in winter when the river was frozen that the great overland trek from Minnesota and Iowa to the confluence city began. Hauls were made from as far north as Albert Lea and

<sup>63</sup> The Prairie du Chien Courier, Jan. 15 and March 5, 1857.

<sup>64</sup> *Ibid.*, May 14, 1857 and June 3, 1858.

<sup>65</sup> *Ibid.*, Nov. 26, 1857.

<sup>66</sup> *Ibid.*, June 11, 1857.

<sup>67</sup> Frederick J. Merk, *Economic History of Wisconsin During the Civil War Decade* (Madison, 1916), 310.

Rochester in Minnesota, and from as far west as Algoma and Mason City, Iowa. The McGregor Times for December 3, 1863, stated, "Business this week is terrific. From daylight until dark persons standing on the levee could see nothing but a solid mass of teams for a mile. All waiting their turn at the scales."<sup>68</sup>

The particular site in Lower Town selected for the rail and boat terminals soon proved to be unwise, for at times of low water boats could not enter the slough to reach the wharves.<sup>69</sup> An acute stage in the difficulties was reached early in the Civil War period with the large increase in eastward moving rail freight. Construction of new and much larger grain storage facilities became imperative. Consequently, in the early sixties the railroad tracks were carried northward across the Marais de St. Friel and up Front street of the old French-Canadian village on the "Island." There, overlooking navigable East Channel, were erected a new depot, a grain elevator of 200,000 bushel capacity constructed of yellow Milwaukee brick, and a warehouse over 400 feet long, of the same material. The removal of the rail and boat terminal facilities from Lower Town was a staggering blow to that part of the city. Population dwindled and business houses moved out. Today this unit has nearly 25% fewer people than it did fifty years ago.

By 1875, or thereabouts (Fig. 9), the population of Prairie du Chien city was just under 3000, more than double that of the entire Prairie at the mid-century.<sup>70</sup> Approximately one quarter (763) of its citizens still resided in Lower Town below the Fort. Fourteen percent (412) of the city's population was in the Old French-Canadian village west of the slough. This nucleus had received an increase in population and its culture pattern had been markedly altered as a consequence of the "Island" being made the rail and boat terminal after its removal from Lower Town. The waterfront, including the first street back from the river, had undergone the greatest change. A number of old dilapidated shacks had been razed to make room for a depot and at least three railroad hotels, including the pretentious Dousman House. The old rock warehouses of both the Hudson Bay and the Astor Fur Companies still persisted (Fig. 11a, b, and c). Railroad tracks occupied much of Front or Water Street (Fig. 15) while between the street and the river were, beginning at the north, a grist and flour mill, the rail-ferry landing, the Diamond Jo warehouse and a grain elevator. The

<sup>68</sup> Milwaukee Sunday Journal, Feb. 10, 1924.

<sup>69</sup> Annual Report of the Milwaukee and Prairie du Chien Railway for 1863, 21.

<sup>70</sup> Census of Wisconsin, 1875.

first Fort Crawford had disappeared and on its Indian-mound site had been erected the luxurious mansion of Hercules Dousman, who was at one time the Astor Fur Company's agent at Prairie du Chien.

The principal unit of the city, containing 65% of its citizens, was north of the Fort on the main terrace. For 50 years this St. Friel settlement had been a satellite of the village on the "Island" and had only surpassed it in importance after the construction of the second Fort Crawford east of the slough. By 1875 this northern unit contained the one significant commercial nucleus of the entire city. The principal business thoroughfare was no longer Main Street paralleling the east margin of the slough. With the location of the rail and boat terminals on the "Island" during the early sixties, business houses began to congregate along Bluff Street (now Blackhawk Avenue) which connected Upper Town by means of a



FIG. 9—Prairie du Chien in 1870-1875. In anatomy the city was distinctly tri-nodal as it is today. The two nuclei on the main terrace were effectively separated by the Fort Crawford Military Tract. Note the business houses concentrated along Main Street (south of Bluff) in Upper Town and along Bluff Street, which connected with the "Islands" where transportation facilities were located. (From copy in Wis. Hist. Library).

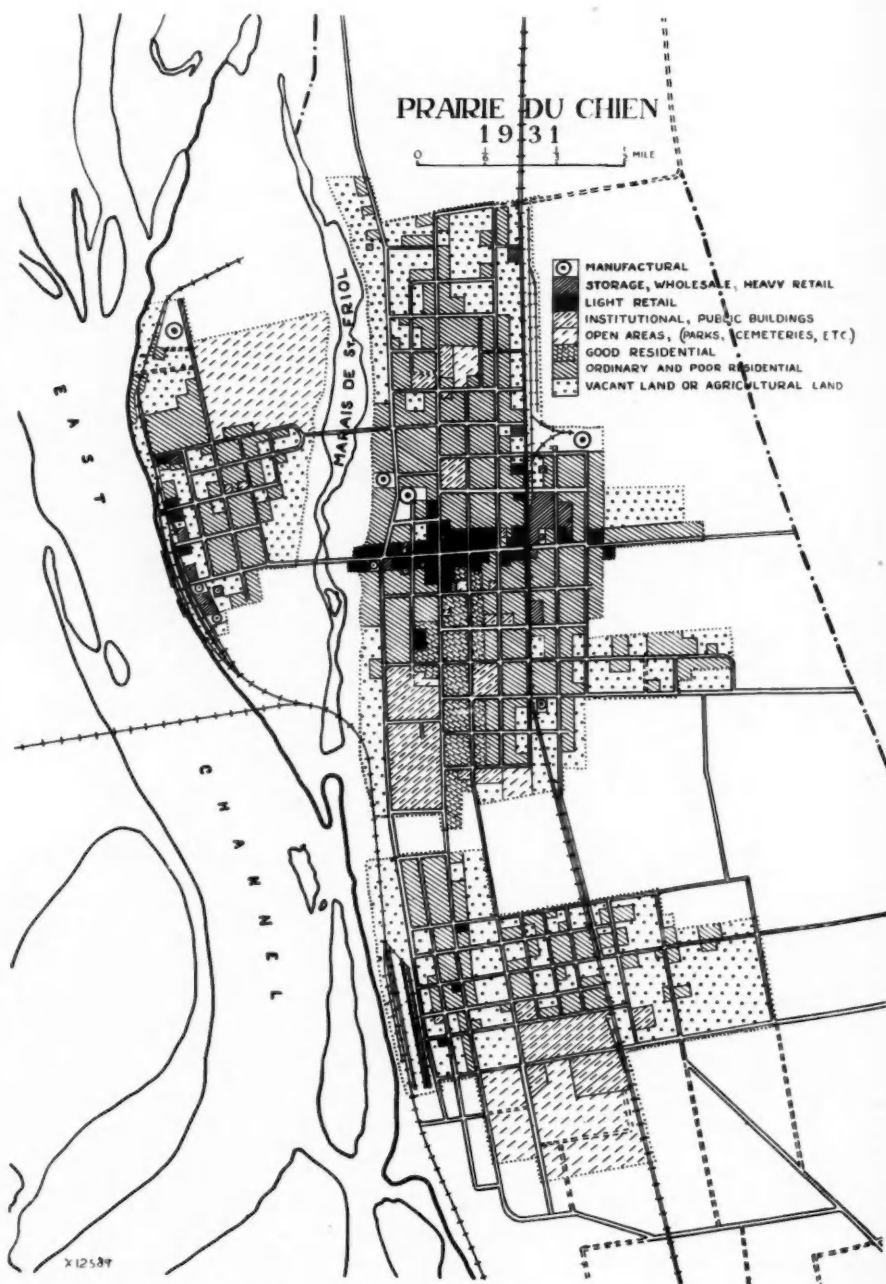


FIG. 10—The City of Prairie du Chien in 1931 with principal culture classes shown.



bridge across the slough, with the depot and wharves. At its eastern end this same street connected with the principal highway extending back into the agricultural trade territory on the upland beyond the gorge walls. It is very likely that the low elevation of old Main Street along the slough, which allowed it occasionally to be inundated, was an additional reason for its abandonment as a business street.

### III. THE PRAIRIE TODAY—THE URBAN AREA<sup>71</sup>

Present-day Prairie du Chien is only the modernized town of 50 years ago. There have been no boom periods within that span of years; no striking metamorphosis has occurred. The most significant changes are those associated with an advance in material culture common to the country at large, viz.: modernized buildings, paved streets, electric lights, garages, automobiles, filling stations, and the like. The arrival of the Burlington Railroad in the eighties, with its depot on the eastern edge of Upper Town, had the effect of creating in the vicinity of the terminal a group of storage and heavy retail establishments the second such group within the city. By

TABLE I.

*Population of Prairie du Chien 1885-1930*

	1930	1910	1885
First Ward (Lower Town).....	589	532	809
{ Second Ward } (Upper Town).....	1420	1103	116
{ Third Ward }	1547	1211	934
Fourth Ward (Old Town).....	387	303	420
Total.....	3943	3149	3326

1885 Prairie du Chien's population had reached 3,326 a figure not again equalled until after 1910; by 1930 it was only 18 or 19% greater than 45 years earlier. Over a period of a quarter century (1885-1910), when steamboat traffic was declining and the confluence city was losing its importance as a trans-shipping point on the river, population remained stationary or even dwindled slightly. Since 1910 the number of residents in the city has increased about 12% each decade, which is almost identical with that of the state as a whole.

The city is polyfunctional in character, no one service overshadowing the others (Fig. 10). As the railroads extended their lines beyond the Mississippi and even parallel with it, gradually

<sup>71</sup> The field work was done during the summer of 1931.

forcing the boats to withdraw from the river, Prairie du Chien's function as a commercial town waned. It is not significantly commercial today, although served by two rail lines. The river is almost entirely unused as a trade route, only an occasional excursion steamer stopping at Prairie du Chien. A compact manufactural nucleus does not exist, altho scattered factories, only three or four of which are large enough to be conspicuous, provide employment for 8-10% of the population in normal years. Thus the town can scarcely be called industrial. Prairie du Chien's function as a retail trading center to a tributary agricultural area is seriously circumscribed by the town's location at the apex of a 60° wedge of territory bounded by the Mississippi and Wisconsin rivers. Trade from across the Mississippi is insignificant for the ferry service is expensive. The Wisconsin is something less of a barrier but nevertheless a serious one. The free bridge recently completed at Bridgeport (Fig. 2) will no doubt tend to attract more buyers from south of the river, but there is less optimism concerning the effect of the new toll bridge now being constructed across the Mississippi at Prairie du Chien. Not only is the trade territory limited in extent but likewise in productive capacity, for it is a rugged hill country with much slope land too steep for cultivation. Wholesale functions are poorly developed within the city. The one such exclusive establishment of any size sells groceries in the small towns along the rail lines for 20-30 miles distant from Prairie du Chien.

In anatomy the city is still distinctly tri-nodal. Two of these centers, separated by the Marais de St. Friol, have been in existence for probably a century and a half; Lower Town still lacks a few years of reaching the century mark. The two units on the main terrace were for a period effectively separated by Fort Crawford and its drill field. Later, the confusion of titles to property included in the so-called Commissioners Plat, a portion of the old French Farm Lot 35, discouraged building in that section. Moreover, the slow growth of the city has resulted in little pressure either from the north or south in closing the gap between the two settlements.

1. *Old Town on the "Island."* On the detached fragment of terrace west of the Marais de St. Friol, urban features occupy the higher central and western part overlooking East Channel. The street pattern is rectangular, one set being parallel with the river, the other conforming to the French-Canadian farm-lot lines extending back at right angles from the river and terminating at the slough (Cf. Figs. 7 and 10). The principal streets are surfaced but

without curbs; others are grown over with grass. No retail commercial core exists. The waterfront has not been altered greatly in its permanent features during the past half century, altho the activity of 50 years ago is gone and the structures then used are either vacant or their functions changed. The grist mill has disappeared but the ferry landing, the Diamond Jo warehouse and a part of the old grain elevator still exist, both of the latter buildings now being used for storage purposes by the railroad, whose numerous tracks nearly fill First Street (Fig. 15). Adjacent to the railroad has grown up a nucleus of forms representing storage and heavy retail functions—oil tanks, stock yards, a cold storage building, city electric plant, ice house, and a small cabinet works. Two old stone buildings on First Street, the Astor Fur Company's

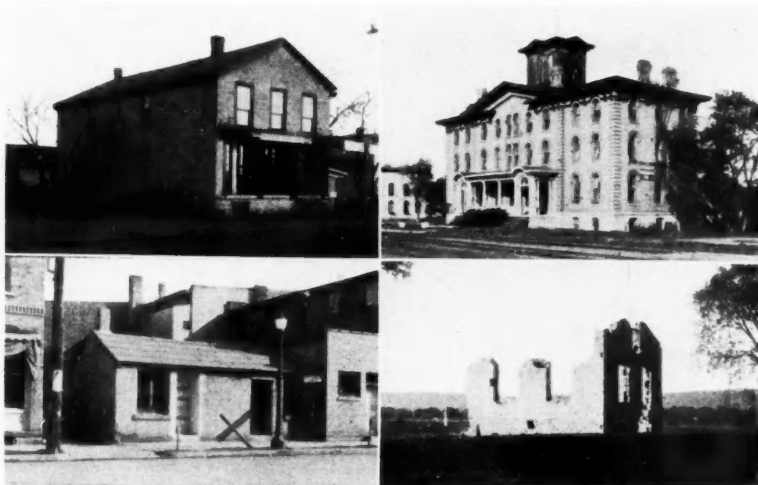


FIG. 11—Ancient structures in Prairie du Chien; three of them (a, c, and d) of native stone, are relics of the fur trading and military periods, while the fourth (b) dates from the era of commercial prosperity.

- a. The Astor Fur Company's stone warehouse, built during the first quarter of the nineteenth century, is one of the oldest rock buildings on the Upper Mississippi. At present it houses a machine repair shop.
- b. The pretentious Dousman Railroad Hotel, built during the Civil War decade. It overlooks East Channel. At present it is vacant.
- c. The Northwest Fur Company's storehouse. This is probably the oldest building in the city, built early in the nineteenth century.
- d. The ruins of Fort Crawford at the south end of Beaumont Road (Church St.) in Upper Town.

warehouse (Fig. 11a) and the Brisbois mansion, still bear evidence to the period of exclusive French-Canadian occupancy. The pretentious Dousman House (Fig. 11b), now vacant, and two other of the old railroad hotel buildings constructed during the sixties, represent the period of Civil War prosperity. The residential section, which lies back from the railroad zone along the river, is composed almost exclusively of poor or ordinary small frame houses, many of them old, dilapidated, and in need of paint.

Immediately north of the village proper on the east side of the highway is the golf course, too flat and sandy to be attractive. Beyond this are extensive gravel pits with top works for screening



FIG. 12—Shacks of clammers and fishermen along East Channel.

and grading the outwash materials. West of the road and set in several acres of wooded grounds, the elaborate Dousman Mansion, a museum as well as a residence, occupies the site of Fort Shelby and the first Fort Crawford. On the river margin, and served by both rail and water, the Phoenix Wood Products Company employs 30-50 men in the manufacture of veneer sheets from which coat hangers are constructed. Location and site were selected because of accessibility to floodplain timber (soft maple, yellow birch, cottonwood) which is used exclusively. At one time 75-80% of the logs were rafted to the factory but at present not more than 25% arrives by water. Miserable shacks of clammers and fishermen, some of them permanent dwellings, dot the immediate river bank from the

village north to the wood-products factory (Fig. 12). Lower in elevation, both the north and south extremities of the "Island" are given over to agricultural uses. The "Island" is still subject to inundation (Fig. 13).

2. *Upper Town.* The nature of the Marais de St. Friol is such as to repel rather than attract, consequently the main city on the high terrace turns its back on the slough presenting an ugly waterfront as one approaches from the west. Connections are made at two points between Upper Town and the village on the "Island," the lower one being an attractive bridge, the upper, an earthen bank flanked with garbage dumps and debris. The street pattern,



FIG. 13—"Old Town" on the "Island" (fourth ward) inundated by flood waters of the Mississippi.

although rectangular, does not follow the old French-Canadian farm-lot lines. It seems rather to have had the general alignment of its streets determined by the old military road extending northward up the Prairie from Fort Crawford.

Upper Town contains the only retail commercial core of the entire city. The principal shopping street is still Black Hawk Avenue (Bluff Street), business houses in general occupying both sides of the thoroughfare from the slough to the Burlington tracks or even beyond, and extending back along the side streets for one-third to a whole block (Fig. 14a and b). Most of the business section is composed of small retail and personal service establish-



FIG. 14a—The heart of the retail commercial district, along Black Hawk Ave. (Bluff St.) between Beaumont Road (Church St.) and Minnesota St. Taken from Beaumont Road looking east.



FIG. 14b—The older business district on Black Hawk Ave. (Bluff St.) west of Beaumont Road. Note that there is a more irregular skyline with numerous buildings more than half a century old. Taken from Beaumont Road looking west toward the Marais de St. Friol. (See Figure 15 for names of streets.)



ments. On the side streets garages, filling stations and the less pretentious shops are more common. From the slough to the crest of the terrace at Beaumont Road (Church Street) the buildings in general are smaller, older and more varied in architecture. Eastward two blocks from Beaumont Road is the heart of the business district. Here two-storied red brick buildings a quarter century or more in age prevail.

A group of wholesale, storage and heavy retail establishments similar to the one on the "Island" has persisted around the Burlington depot north of Black Hawk Avenue. There is no industrial nucleus altho two of the three most important factories in the city are located in Upper Town. The largest, a ten-set wool spinning and weaving plant with 200 employees in normal times, manufactures heavy, inexpensive fabrics for overcoats and mackinaws. Neither the location nor the site (one block north of Black Hawk Avenue between North Main and Beaumont Road) are at all strategic. The tomato and kraut cannery three blocks north of Black Hawk Avenue along the east side of the railroad, is a seasonal industry employing 200 workers at the peak period from August 1 to October 15 and a considerably smaller staff from October to Christmas. The light warm soils, early springs and long growing season on the Prairie are very positive advantages for tomato culture. On the canning company's farm adjacent to the factory are grown 80-100 acres of tomatoes and sufficient other crops for winter feeding 55 to 60 head of cattle. In addition to the woolen mill and the cannery which are of conspicuous size, this part of the city contains a small plant which manufactures grinding and polishing tools, a grist mill, two printing shops and a butter and ice cream factory.

The only relatively large superior-residence section of Prairie du Chien is south of Black Hawk Avenue along Beaumont Road and Minnesota Street (Fig. 15). Here numerous shade trees, large well-kept lawns with moderate sized houses, indicate a concentration of the wealthier citizens. Close to the south end of Beaumont Road, which follows the crest of the terrace, are the attractive wooded grounds of St. Mary's Academy, the Prairie du Chien Sanitarium, as well as the ruins of Fort Crawford (Fig. 11d) and its attractive military Cemetery. Homes of ordinary quality comprise most of the residential section.

3. *Lower Town.* The southernmost unit of the city is almost exclusively residential in character. Two small neighborhood stores and a saloon are the only business places. The houses are small, frequently of cottage architecture and the best only ordinary.

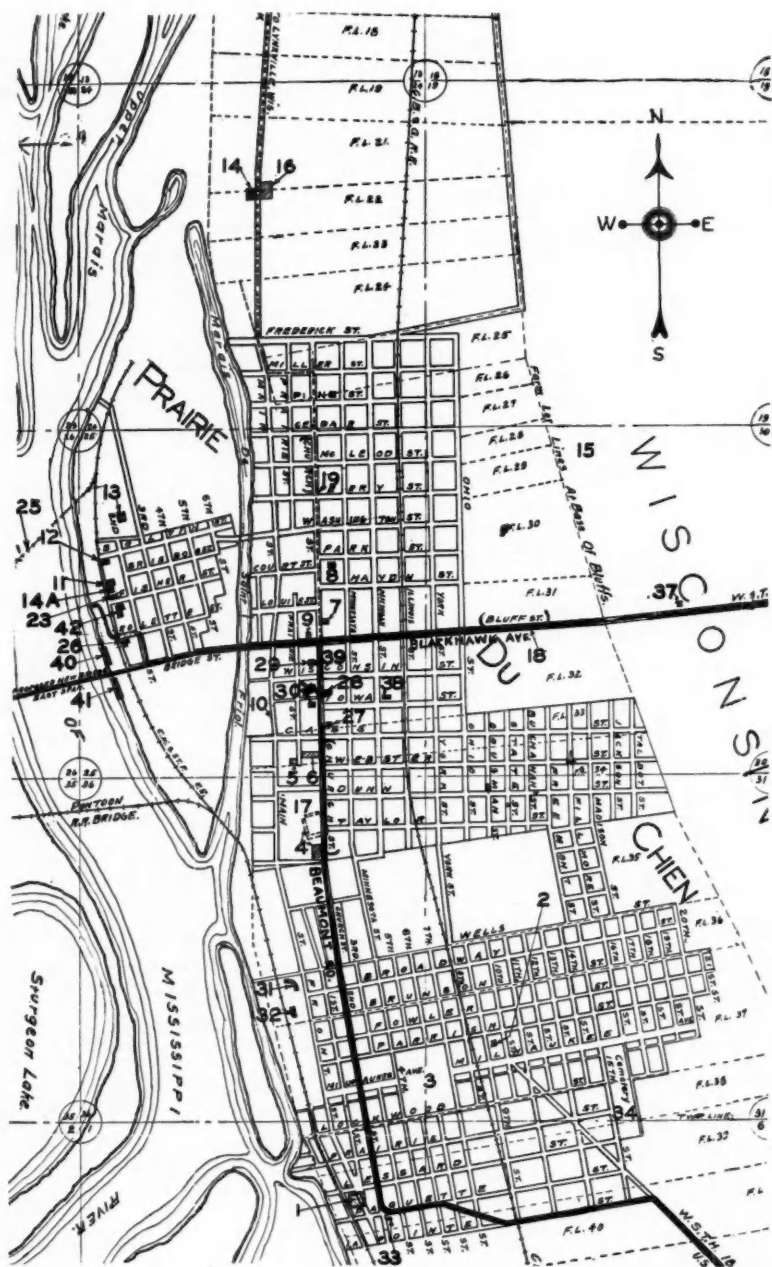


FIG. 15—Map showing location of points of historical interest and relict features in Prairie du Chien. (From an advertising folder published by the city of Prairie du Chien in 1929).

## KEY TO POINTS OF INTEREST

1. Old Fort St. Nicholas, 1685.
2. Old Rock School House.
3. Campion College, site of first school.
4. Ruins of Ft. Crawford.
5. Zachary Taylor's House.
6. Old Government Cemetery.
7. Northwestern Fur Co.
8. Court House, 1867.
9. Womens Building L.O.W.V.
10. Main Street, Old Military Road.
11. Brisbois Home.
12. Astor Fur Co.
13. Ft. Shelby & Ft. McKay, Now Dousman Res.
14. Old French Cemetery, Rolette's Tomb.
- 14a. Hudson Bay Co.
15. Brisbois Tomb.
16. Cemetery & H. L. Dousman's Grave.
17. Saint Mary's College, Marquette Mon.
18. Blackhawk tree.
19. St. Gabriels Church, 1839.
20. State Park, Marquette Monument.
21. Pikes Peak, Pictured Rocks,—State Trunk Highways.
22. McGregor Heights.
23. Rolette Home.
24. Menomonee Indian Massacre July 31, 1831.
25. Old site Pontoon Bridge.
26. Basil Giard Home.
27. Zachary Taylor's Home on Church St.
28. First M.E. Church organized 1835, Built 1847, first Minister, Elder Brunson.
29. Francois La Pointe's Trading Post.
30. Congressman O. B. Thomas' Home.
31. First C.M.&St.P. Round House.
32. Old C.M.&St.P. Depot.
33. Old Military Well.
34. Evergreen Cemetery.
35. Red Bird Indian Massacre, June 28, 1827.
36. Pike's location for U. S. Fort.
37. Old beer cellar, built about 1850.
38. Old Trinity Church, org. 1836, built 1855.
39. City Park, Artesian well.
40. Old Diamond Jo Warehouse.
41. Old Grain Elevator.
42. Old Dousman House Hotel.
43. Francois Cayelle's Claim.

TABLE II

*The Prairie du Chien Terrace*

Quantitative Analysis of the Cultural Landscape Groups Occupying its Surface.

Quantitative Analysis of the Cultural Landscape Groups Occupying its Surface.				%	
Total Area 4993 acres (7.8 sq. mi.)	Urban <sup>12</sup> Features, 20%.....	Upper Town (Wards 2 and 3), 52%.....	Residential.....	45.0	
			Light Retail.....	4.0	
			Storage, Wholesale and Heavy Retail.....	1.5	
			Manufactural.....	2.5	
			Institutional, Public Bldgs.....	8.5	
		Lower Town (Ward 1), 30%.....	Open Areas (parks, playgrounds, etc.).....	1.5	
			Agricultural, Vacant, and Railroad Land.....	37.0	
			Old Town (Ward 4), 18%.....	Residential.....	18.0
				Light Retail.....	0.5
				Storage, Wholesale and Heavy Retail.....	0.0
	Manufactural.....	0.0			
	Institutional, Public Bldgs.....	9.5			
	Rural Features, 80%.....	Cultivated Land, 77%.....	Open Areas (parks, playgrounds, etc.).....	16.5	
			Agricultural, Vacant, and Railroad Land.....	55.5	
			Residential.....	27.0	
			Light Retail.....	1.0	
			Storage, Wholesale and Heavy Retail.....	2.5	
		Grass Land, 10% Waste and Idle Land, 6% (Farmsteads, Roads, Railroads, Quarries, Cemeteries, etc.) } 7%.....	Manufactural.....	4.0	
			Institutional, Public Bldgs.....	1.0	
Open Areas (parks, playgrounds, etc.).....			27.0		
Agricultural, Vacant, and R. R. Land.....			7.5		
Corn.....			43.0		
	Small Grains.....	30.0			
	Hay.....	15.0			
	Tomatoes.....	9.0			
	Other Crops.....	3.0			

<sup>12</sup>The geographical city, or region of urban development; not the political city, is here considered.

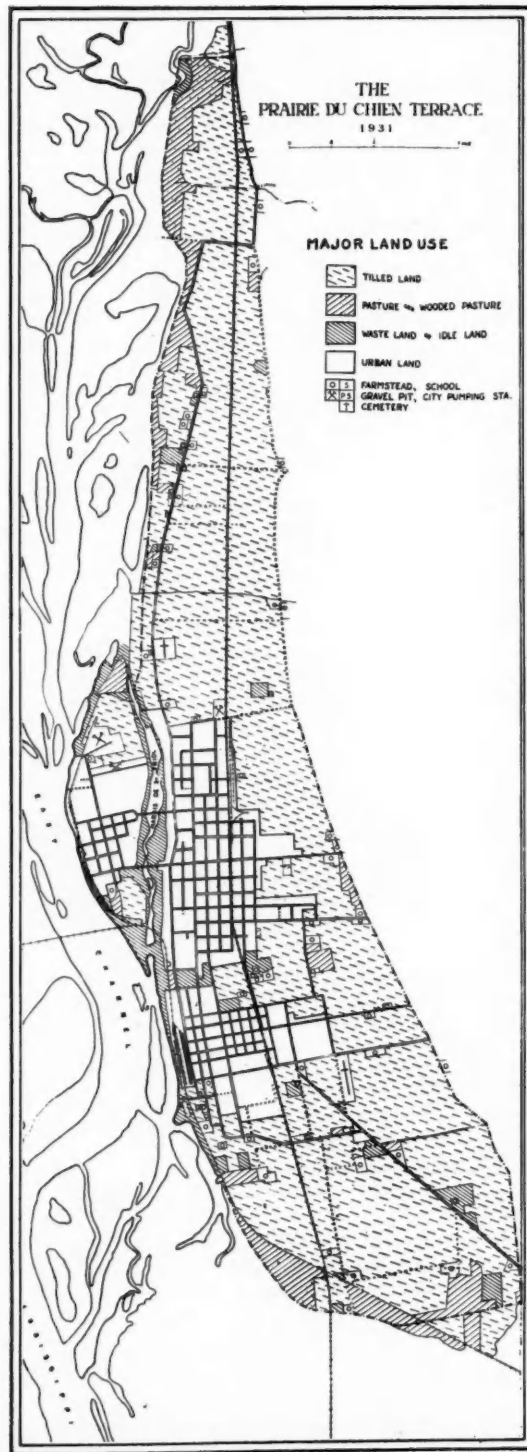
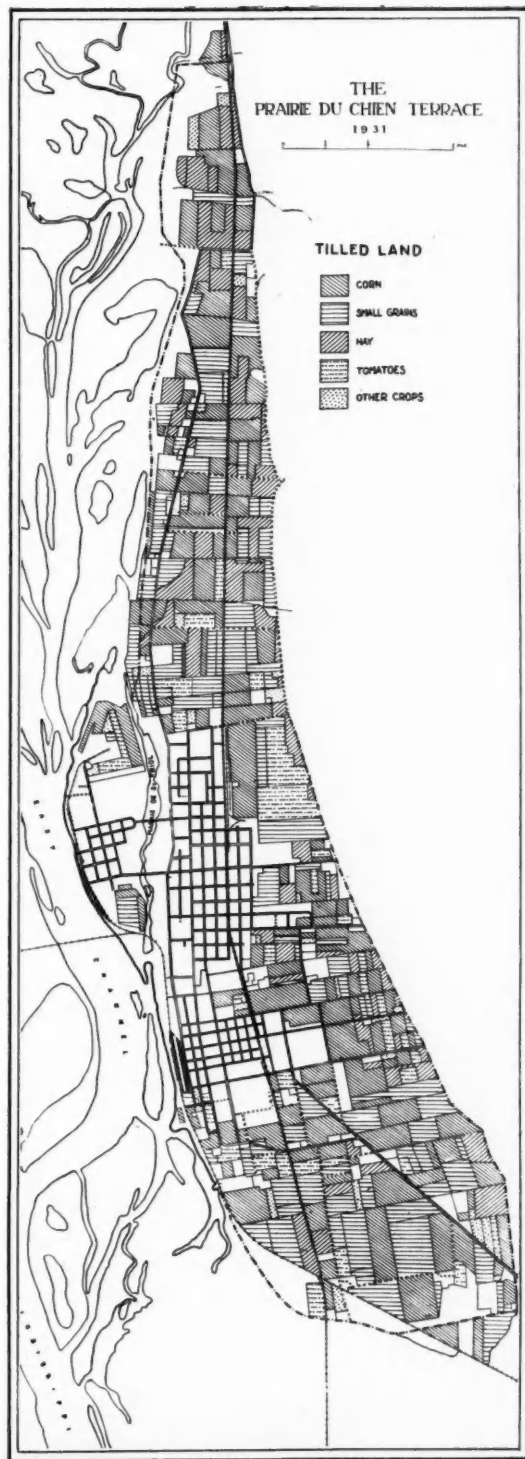


FIG. 16—Major culture divisions of the Prairie du Chien terrace, 1931.

FIG. 17—The tilled land on the Prairie du Chien terrace subdivided on the basis of crops, 1931.



The Campion Academy buildings are the only imposing ones in the lower village. East of Beaumont Road the town plat is only sparsely occupied by houses. The streets are often grassy lanes while associated with the homes are barns, chicken houses, large gardens and even small field plots. One is frequently in doubt as to whether the scene is not more rural than urban. The street pattern is rectangular, one set of streets paralleling the old French-Canadian farm-lot lines, with the other at right angles to them.

#### IV. THE PRAIRIE TODAY—THE RURAL AREA

Occupying 80% of the terrace surface, the rural landscape is distinctive by reason of the extraordinarily high proportion of cultivated land (Fig. 16), the predominance of corn among the tilled crops (Fig. 17), the small size of the field plots, and the striking rectangularity of their pattern. The farm lot lines established by the French-Canadian settlers 150 years ago still persist in many of the present-day farm boundaries. Even when several of the original farm lots have been combined, in whole or in part, to form a single modern farm, the line fences not infrequently still persist as field boundaries.

The generally light and droughty soils of the terrace do not favor a luxuriant grass cover which is a partial explanation for the dearth of pasture land. Moreover the steep slopes of the adjacent upland, while less well suited to cultivation than the Prairie, provide ample and good pasture. The low and partially wooded northwest margin of the terrace is in grass as is a similarly low area as its southeastern extremity. Isolated from the rest of the Prairie by the rather wide and deep excavation followed by the Milwaukee Railroad, lands south of the tracks are also largely pastured, while relatively small night pastures exist adjacent to some of the farmsteads. But altogether these inferior grasslands do not total more than 10% of the rural area.

General subsistence agriculture is the rule. Grains and forage crops are fed to hogs and cattle, none being sold directly from the farms. Tomatoes, which are bought by the cannery, are the single important cash crop, altho melons and other truck products are minor sources of income. Some small landholders near the city engage almost exclusively in raising vegetables and berries. Half a dozen farmers on the terrace specialize in dairying, each of this group having pasture lands on the uplands east of the gorge and some of them on the floodplain as well. Thus the Prairie, the uplands and the floodplain are complementary to each other in the



agricultural economy of the dairy farmers, the first location providing the grain and forage crops, the other two locations the necessary summer pastures. One seldom sees the milk cows on the terrace except at night when they are at the farmsteads to be milked. Milk from three of the largest herds is peddled in the city, the other dairy farmers selling to the butter factory or the cream collecting stations.

The mouths of the coulees are common locations for farmsteads since these tributary gorges are the means of access to the upland pastures (Fig. 18). Two parallel lines of farmsteads exist on the



FIG. 18—Farms at the mouths of coulees. A railroad crosses the terrace in the middle distance.

northern half of the terrace, one at the base of the bluffs and the other along the County Trunk highway. The region of greatest farmstead concentration along the highway, containing a school and the remains of what was a brick store, is a settlement nucleus which has persisted since the French Canadian period. It was mentioned by Major Long in 1817 and appears on the Lyons map of 1828. Even today it is known on the Prairie as "Frenchtown."

The cultivated crops on the terrace are in order of their importance, corn, occupying 43% of the cultivated area, small grains 30%, hay 15, tomatoes 9, all others 3. The hay crop, which, on the heavier soils of the northern third of the terrace ranks next to corn in importance, diminishes in acreage toward the sandier south end

of the Prairie. A considerable part of the hay land is in alfalfa. Most of the crops on the terrace suffer in years of deficient rainfall.

## SUMMARY

Along the Fox-Wisconsin portage route connecting the Great Lakes with the Mississippi are located the two oldest settlements in Wisconsin, Green Bay at its eastern terminus and Prairie du Chien at its junction with the Mississippi. The sites of both settlements were first selected for occupancy by French traders because of their strategic location in the collection and transport of furs. At Prairie du Chien the waning of the fur trade was contemporaneous with the rise of the site to importance as a frontier military post, planned to thwart the designs of Great Britain in the Upper Northwest, and later to keep peace among the Indians and protect the white settlers. When, after 1850, the Indian threat ceased to exist, Fort Crawford was abandoned and the era of military occupancy at Prairie du Chien was at an end. The short period of depression and gloom which followed the garrison's departure was abruptly terminated by the arrival of the railroad from Milwaukee. Within less than a decade the old town was transformed, as it felt the quickening effect of its new position as a rail terminus on the Mississippi in the heart of the agricultural frontier. For two or three decades the confluence city prospered as a trans-shipping center, but as the railroads and the frontier moved westward and boat traffic declined, Prairie du Chien entered a period of stagnation. For the first time in two centuries the confluence location had ceased to be strategic and the settlement at the mouth of the Wisconsin of more than local significance. Increasingly the town has been forced to depend for its support upon the local "umland" which is limited both in extent and productivity.

By this field survey of the Prairie du Chien terrace in the summer of 1931, there has been established a landscape datum plane from which can be measured the changing occupancy on the terrace during the past two and a half centuries, as well as the successive cultures which may be evolved by its residents during future decades.

